DECEMBER 1954

The Paper Industry

Market Development in Focus

*A paper presented by Swenson before the Second Annual Pulp and Paper Conference.

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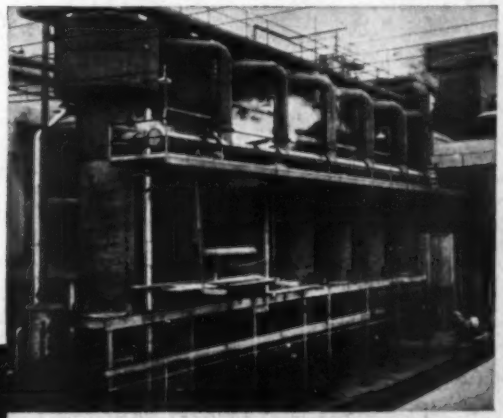

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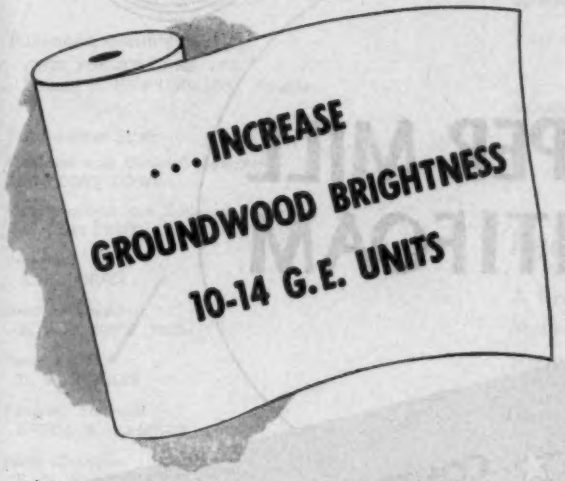

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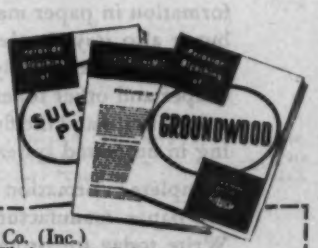

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Good Bleaching

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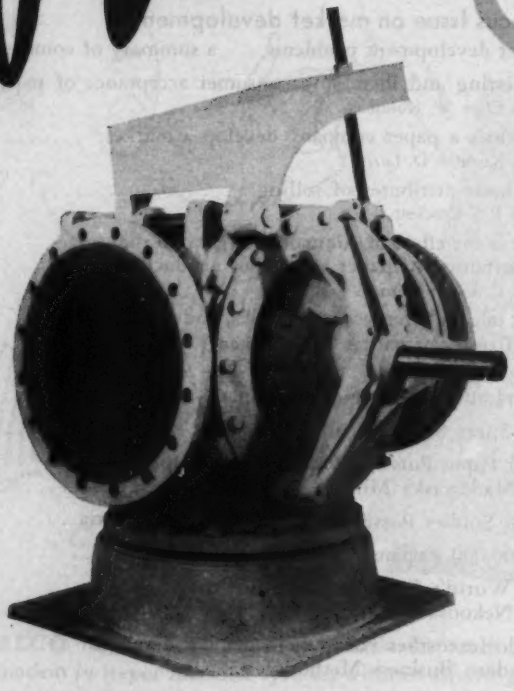

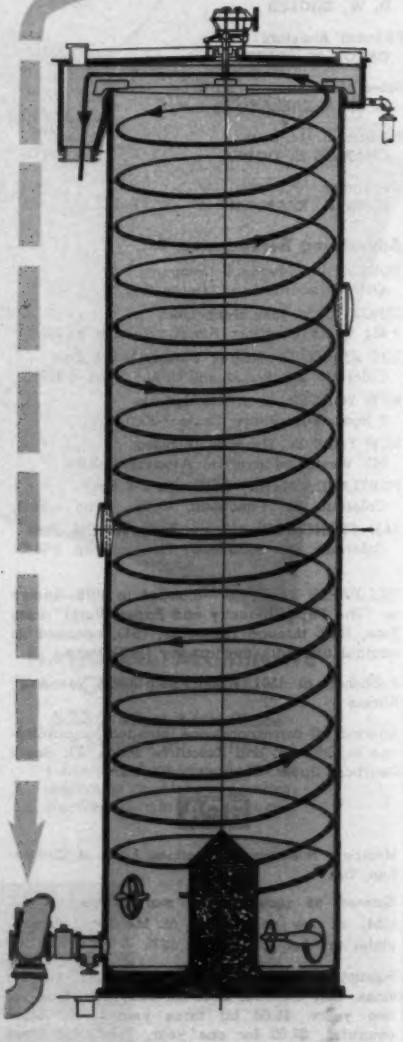

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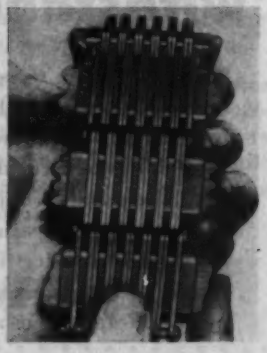

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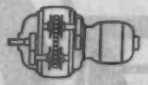
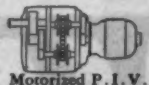


Motorized P.I.V. with single reduction input and output helical gears.



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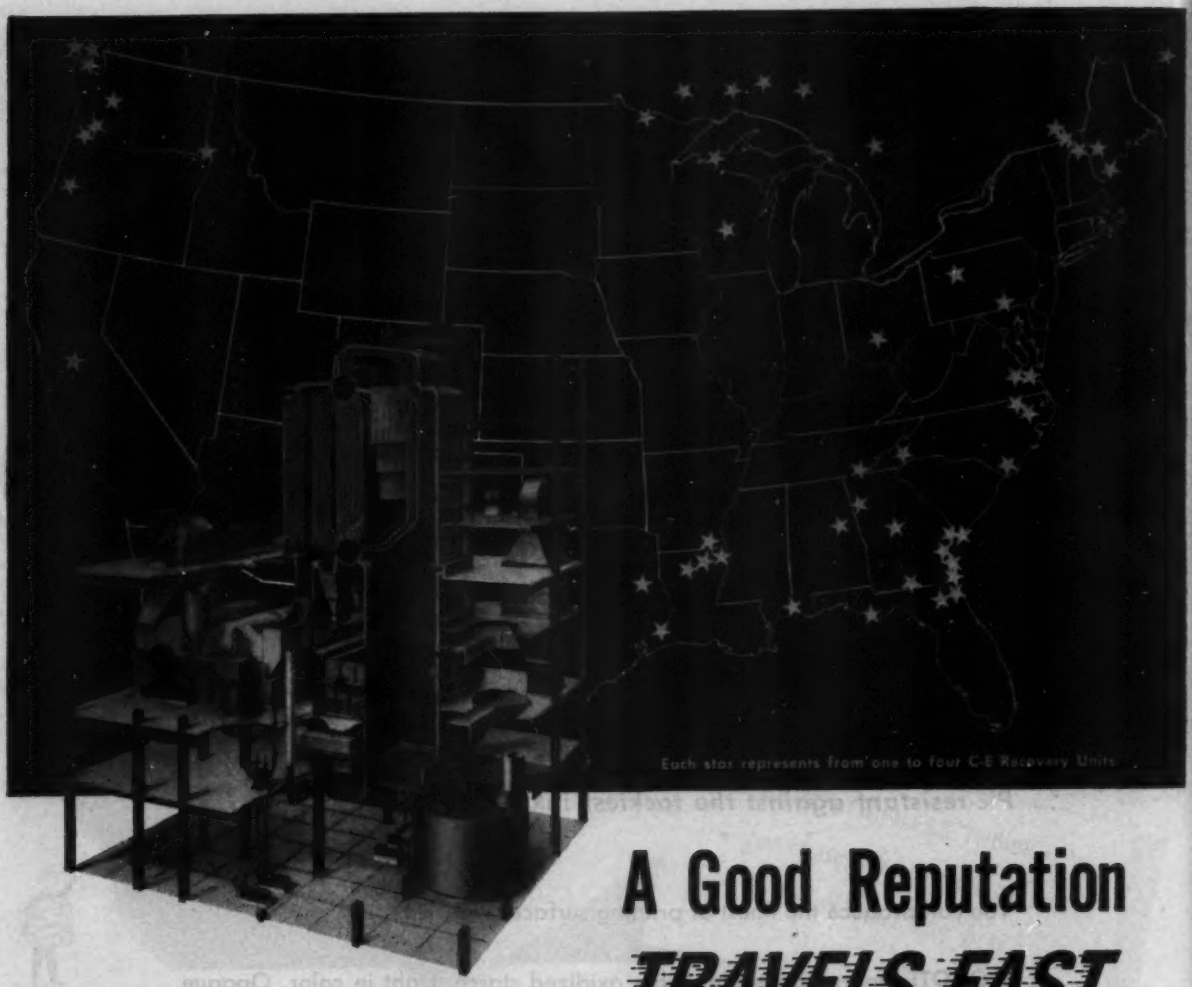

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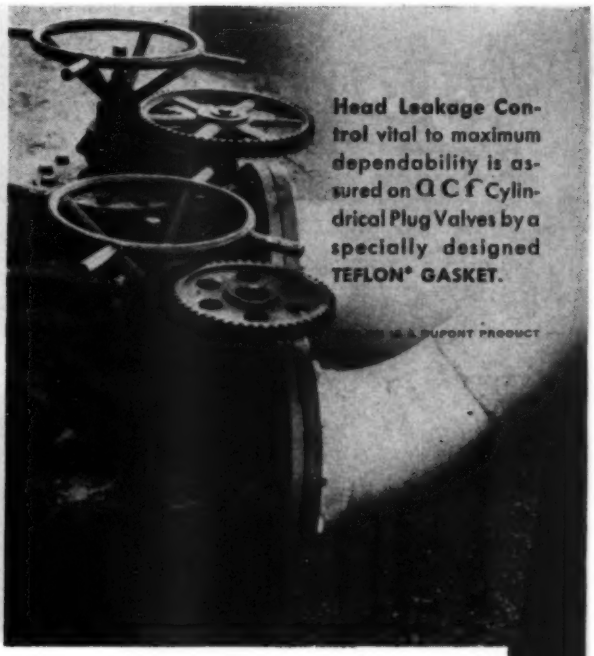

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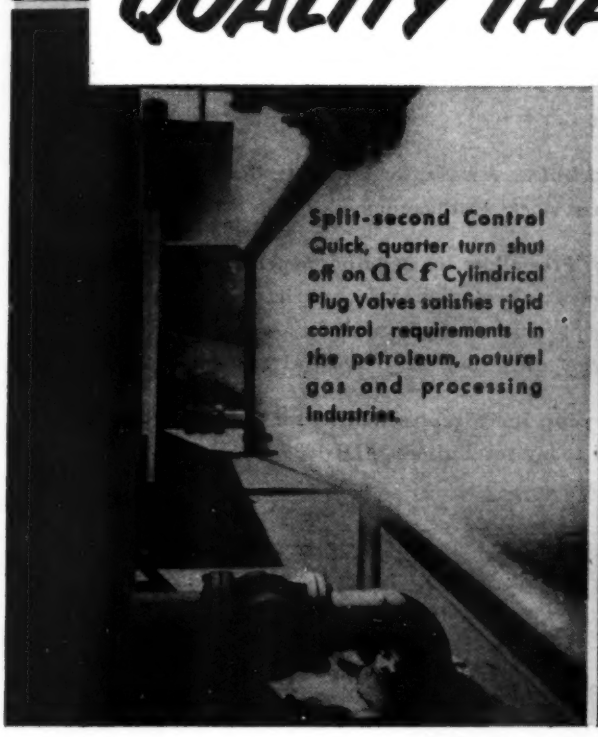

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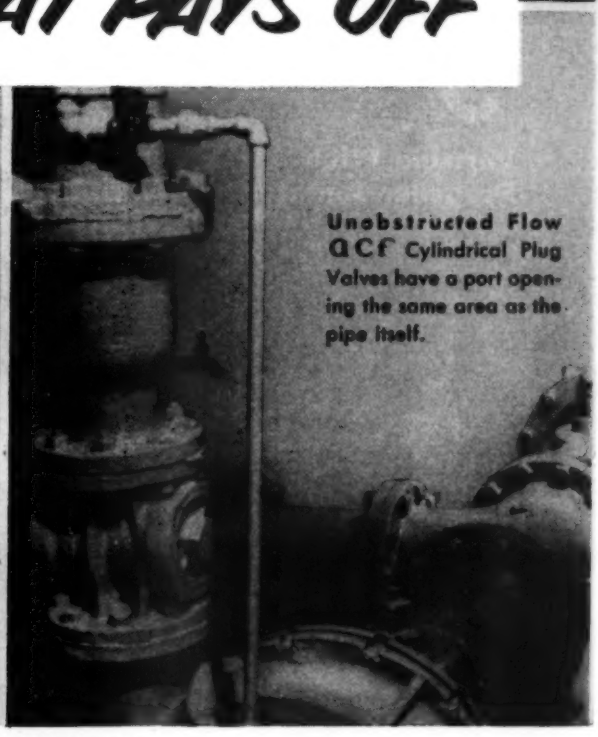

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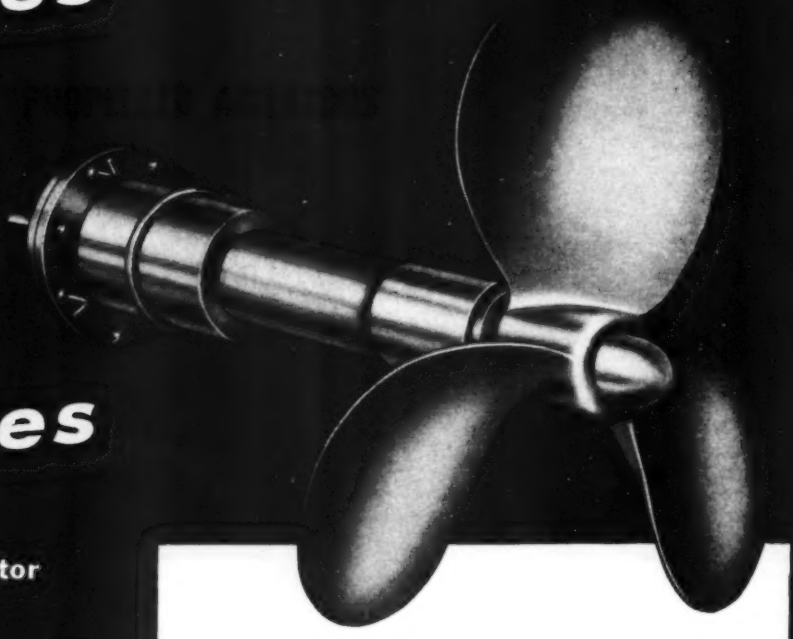

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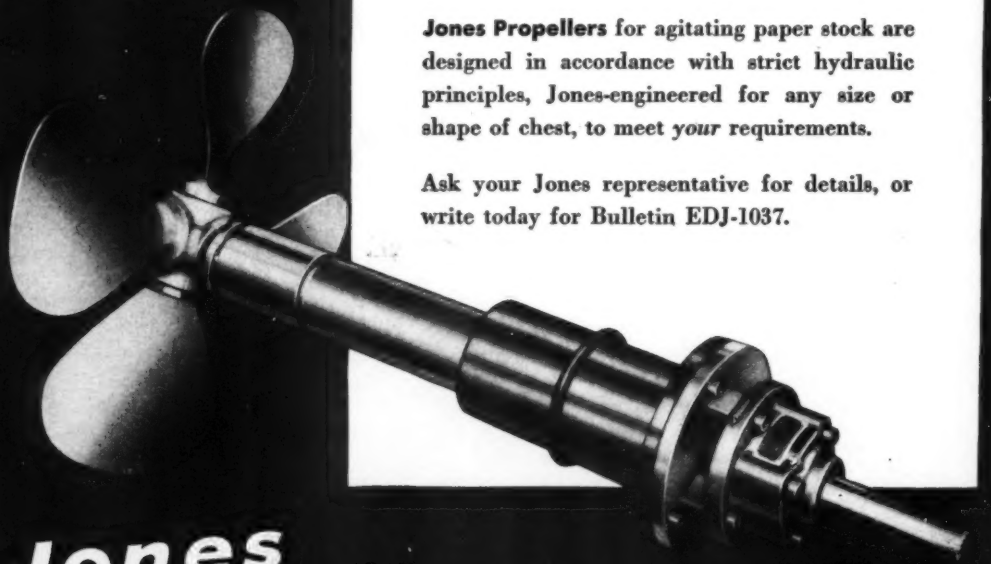

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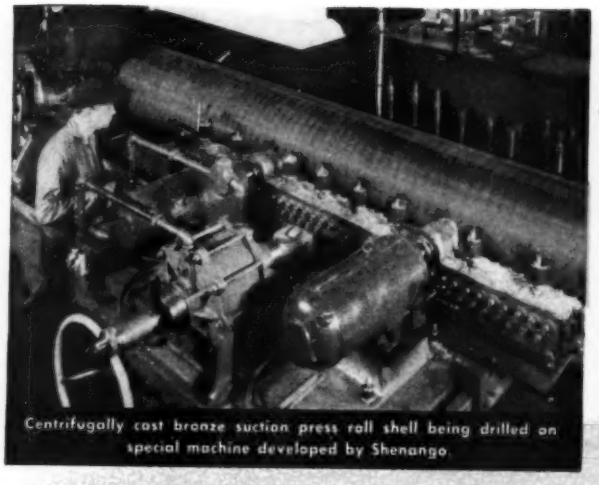
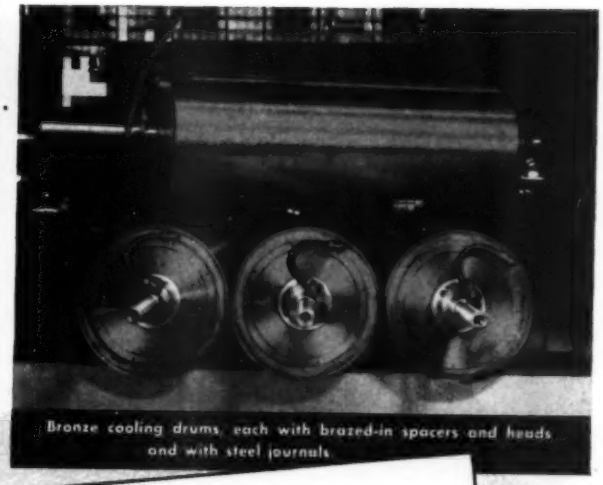


Centrifugally cast bronze suction press roll shell being drilled on special machine developed by Shenango.



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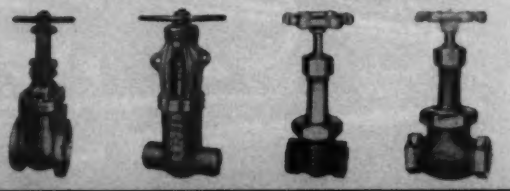
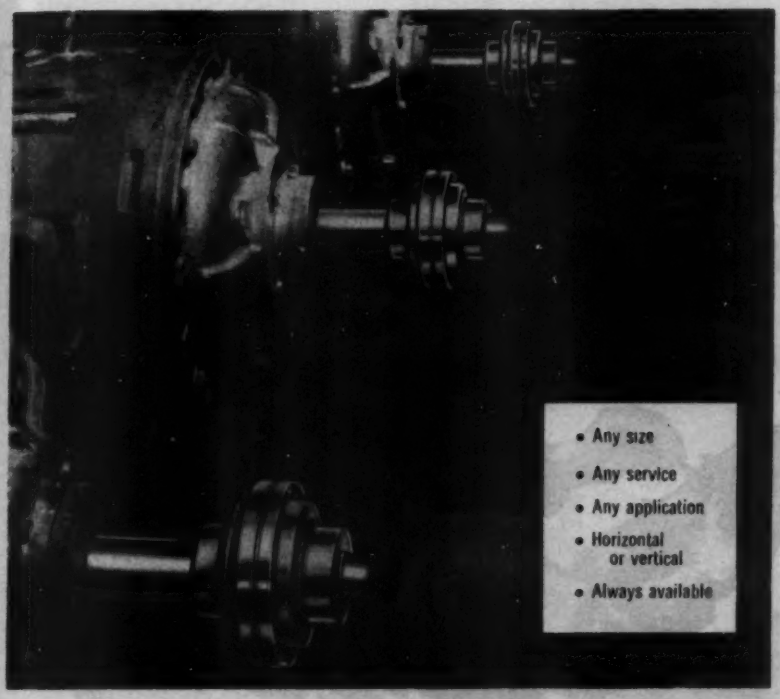


Powell Valves

108th year



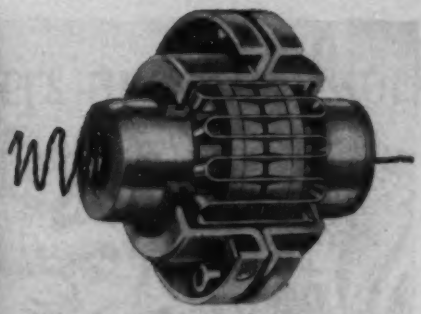
FALK Steelflex Couplings save you money by prolonging the work-life of connected machinery

Ever since the first Falk Steelflex Coupling was designed and built, more than thirty years ago, we have firmly held to these beliefs:

1. A coupling, to give fullest value, must do more than merely connect driving and driven machinery—it must protect the machinery and prolong its life.
2. A coupling, to be truly flexible, must overcome the effects of shock and vibration, as well as shaft misalignment (see column at right).

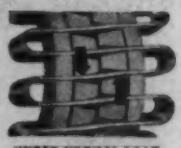
Proof of the soundness of these beliefs is furnished by the record. Many Falk Steelflex Couplings installed 10, 20, even 30 years ago are still giving trouble-free service—still providing maximum protection for the machinery they connect!

A single basic type—the world-famous Type F—fills nine out of ten industrial application needs. Versatile, efficient and economical, it is always quickly available, in a wide range of sizes, regardless of your location. Write to Department 247 for engineering bulletin, including selection and dimension details.



How Torsional Resilience smothers shock and vibration

The steel gridmember connecting hubs fits snugly only at outer edges of tapered hub-teeth. As load increases, gridmember flexes against teeth in proportion to load, providing cushion that spreads peak loads over longer time increment and reduces stresses in machinery.



UNDER NORMAL LOAD

ANGULAR MISALIGNMENT

...Accommodates shaft misalignment... Permits free end float

The exclusive FALK all-steel grid-groove design provides compensation for parallel and angular shaft misalignment . . . permits free end float.

PARALLEL MISALIGNMENT

FREE END FLOAT

Special or Dual Purpose FALK Steelflex Couplings for problem applications

LIMITED SPACE
Type FS

RAPID REVERSING SERVICE—Type CM

HIGH SPEEDS
Types H and HH

BRAKEWHEEL SERVICE
Type BW

OVERLOAD CONTROL
Type FT

EXTENDED SHAFT
Type P

FLOATING SHAFT
Type PP

Do you have a coupling problem?

If so, describe it in writing—we will gladly recommend the proper Steelflex coupling for your needs. Write to Department 247.

THE FALK CORPORATION, Milwaukee 8, Wisconsin

MANUFACTURERS OF

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

FALK

...a good name in industry

value in a fine product

reflects the experience and

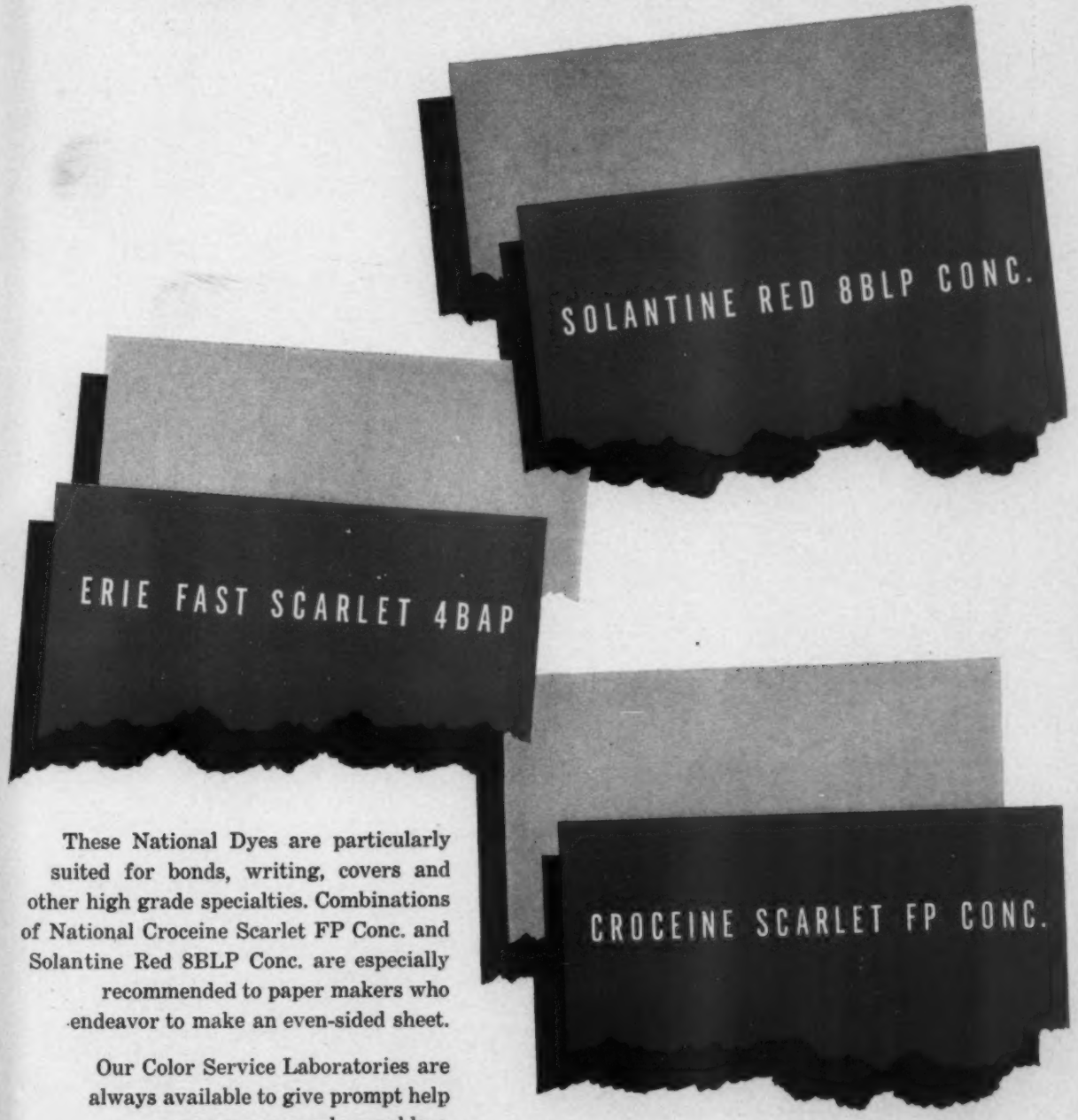
skills of its makers.

value in Fourdrinier wires is a matter of record ... paper quality and production records in mills throughout America reflect the fact that Appleton Wires are Good Wires!

APPLETON WIRE WORKS, INC., APPLETON, WISCONSIN

For Coloring Bleached Wood Fibers and Rag Stocks

THREE EXCELLENT NATIONAL "RED" DYES



These National Dyes are particularly suited for bonds, writing, covers and other high grade specialties. Combinations of National Croceine Scarlet FP Conc. and Solantine Red 8BLP Conc. are especially recommended to paper makers who endeavor to make an even-sided sheet.

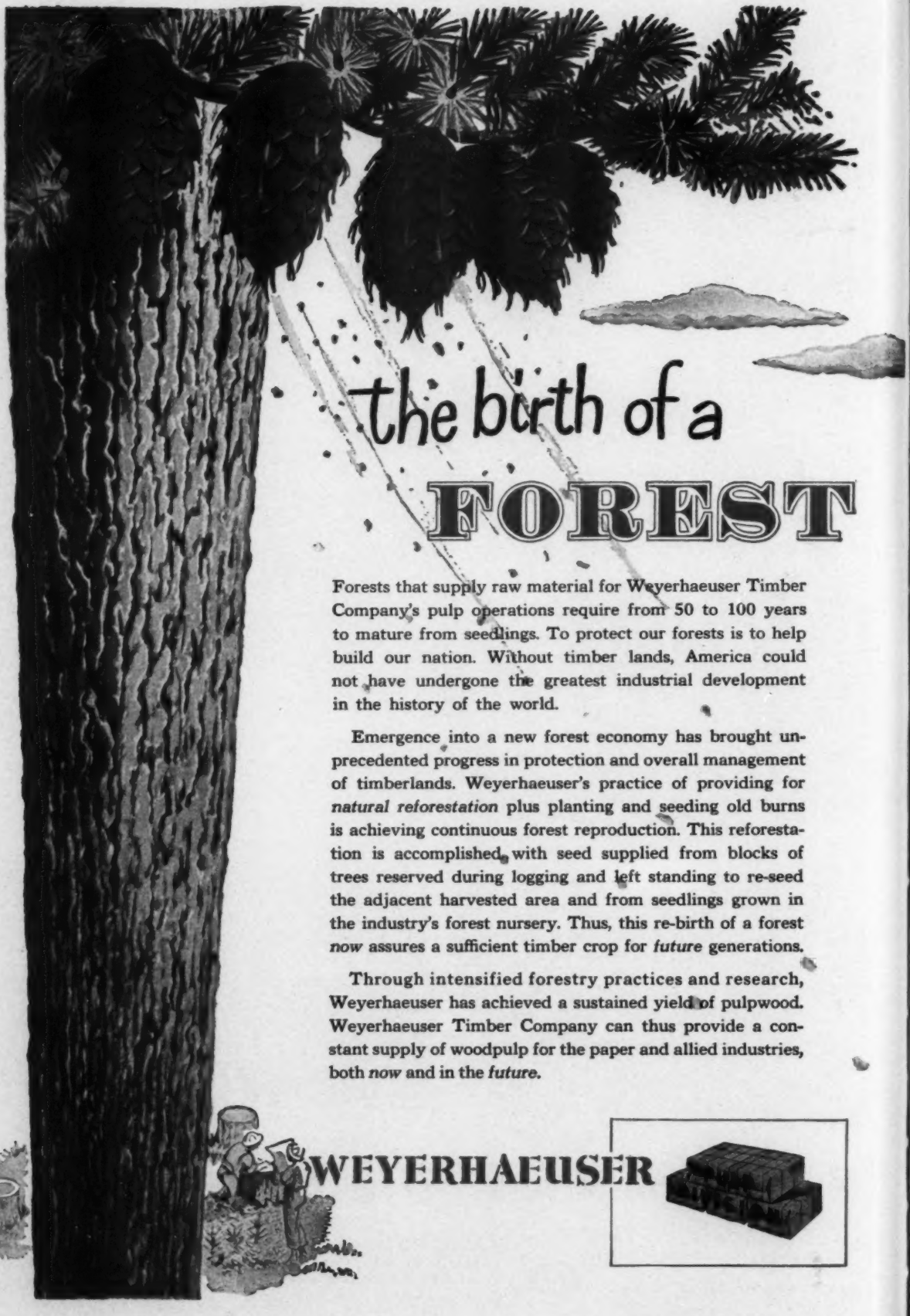
Our Color Service Laboratories are always available to give prompt help on any paper color problem.

NATIONAL PAPER DYES

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Providence Philadelphia Chicago San Francisco
Portland, Ore. Greensboro Charlotte Richmond Atlanta
Columbus, Ga. New Orleans Chattanooga Toronto

Allied Chemical



the birth of a FOREST

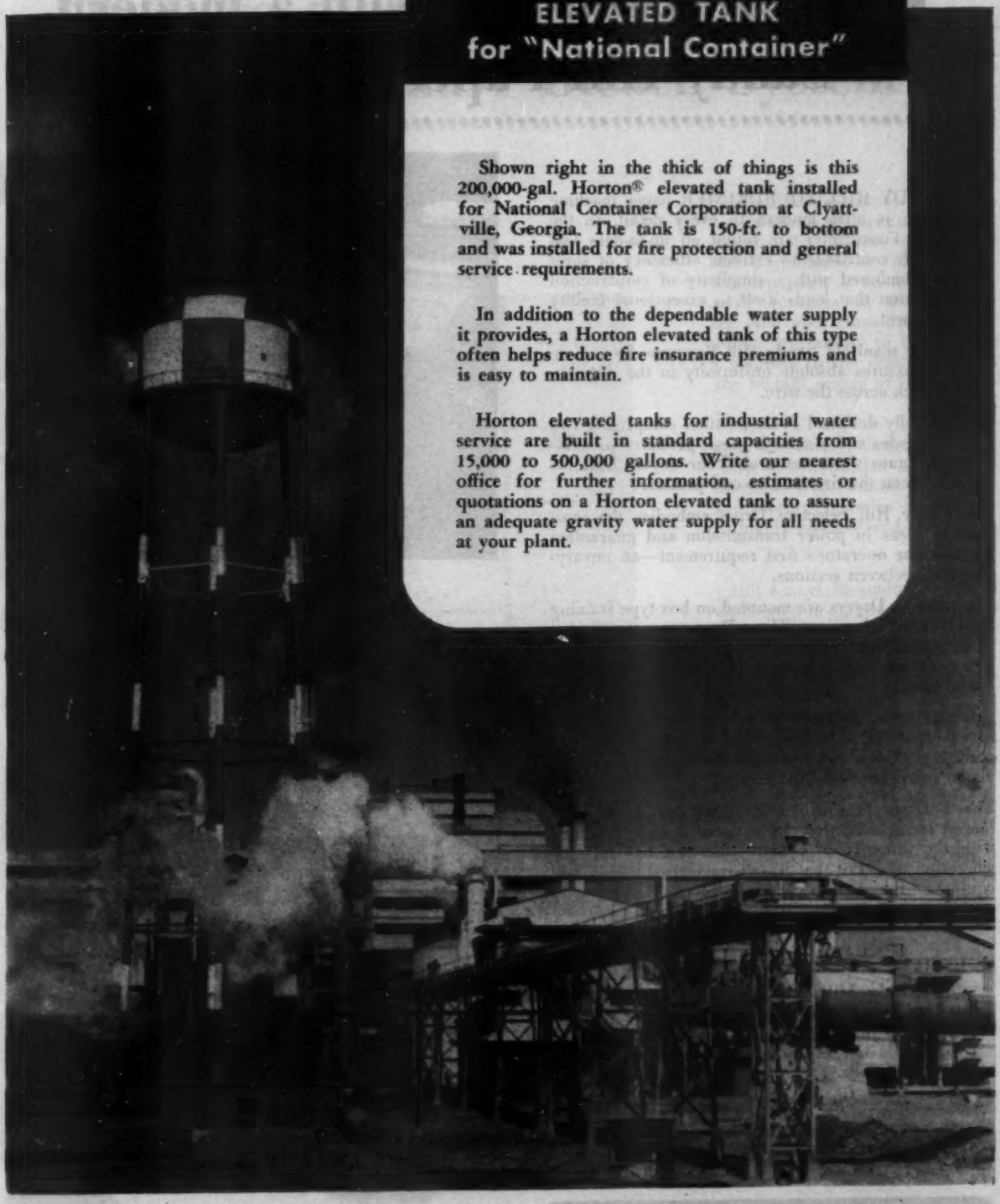
Forests that supply raw material for Weyerhaeuser Timber Company's pulp operations require from 50 to 100 years to mature from seedlings. To protect our forests is to help build our nation. Without timber lands, America could not have undergone the greatest industrial development in the history of the world.

Emergence into a new forest economy has brought unprecedented progress in protection and overall management of timberlands. Weyerhaeuser's practice of providing for *natural reforestation* plus planting and seeding old burns is achieving continuous forest reproduction. This reforestation is accomplished with seed supplied from blocks of trees reserved during logging and left standing to re-seed the adjacent harvested area and from seedlings grown in the industry's forest nursery. Thus, this re-birth of a forest *now* assures a sufficient timber crop for *future* generations.

Through intensified forestry practices and research, Weyerhaeuser has achieved a sustained yield of pulpwood. Weyerhaeuser Timber Company can thus provide a constant supply of woodpulp for the paper and allied industries, both *now* and in the *future*.

WEYERHAEUSER

C B & I BUILDS 200,000-GALLON ELEVATED TANK for "National Container"



Shown right in the thick of things is this 200,000-gal. Horton® elevated tank installed for National Container Corporation at Clyattville, Georgia. The tank is 150-ft. to bottom and was installed for fire protection and general service requirements.

In addition to the dependable water supply it provides, a Horton elevated tank of this type often helps reduce fire insurance premiums and is easy to maintain.

Horton elevated tanks for industrial water service are built in standard capacities from 15,000 to 500,000 gallons. Write our nearest office for further information, estimates or quotations on a Horton elevated tank to assure an adequate gravity water supply for all needs at your plant.

CHICAGO BRIDGE & IRON COMPANY

Atlanta, 3.....2143 Healey Building
Birmingham, 1.....1511 North 50th Street
Boston, 10.....1026—201 Devonshire Street
Chicago, 4.....2445 McCormick Building
Cleveland, 15.....2267 Midland Building
Detroit, 26.....1566 Lafayette Building
Houston, 2.....2143 C & I Life Building
Los Angeles, 17.....1559 General Petroleum Building
New York, 6.....3350—165 Broadway Building
Philadelphia, 3....1653—1700 Walnut Street Building
Pittsburgh, 19.....3231 Alcoa Building
Salt Lake City, 4.....527 West 17th South Street
San Francisco, 4.....1547—200 Bush Street
Seattle, 1.....1327 Henry Building
Tulsa, 3.....1651 Hunt Building

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

In Canada: HORTON STEEL WORKS LIMITED, FORT ERIE, ONT.

Buckeye *produces* with a modern Sandy Hill Paper Machine

THE SANDY HILL FOURDRINIER paper machine at Buckeye is ultra modern in every detail. In the removable Fourdrinier are found all up-to-date features which contribute to extreme efficiency of sheet forming combined with a simplicity of construction and operation that lends itself to exceptional facility of adjustment.

A multiple manifold Sandy Hill Bertrams Flow Control Unit assures absolute uniformity in the distribution of stock across the wire.

The specially designed Press Section, comprising two suction presses and a smooth press, produces progressive maximum water removal. Four dryers heat the sheet between the first and second presses.

The Sandy Hill Selective Drive embodies the most modern ideas in power transmission and guarantees the machine operator's first requirement—an unvarying draw between sections.

The five-foot Dryers are mounted on box-type framing in anti-friction bearings. These Dryers are constructed in the latest board machine dryer design which provides maximum convenience in working around the dryer nest.

Ten ton jumbo rolls of pulp are wound on a constant speed drum reel. The rolls, both in starting and final reeling positions, are hydraulically loaded, with provision for pressure adjustment.

The Buckeye Fourdrinier machine incorporates the newest ideas in improved functional design combined with the integrity of construction and faithful consideration of detail that has characterized Sandy Hill equipment for generations.

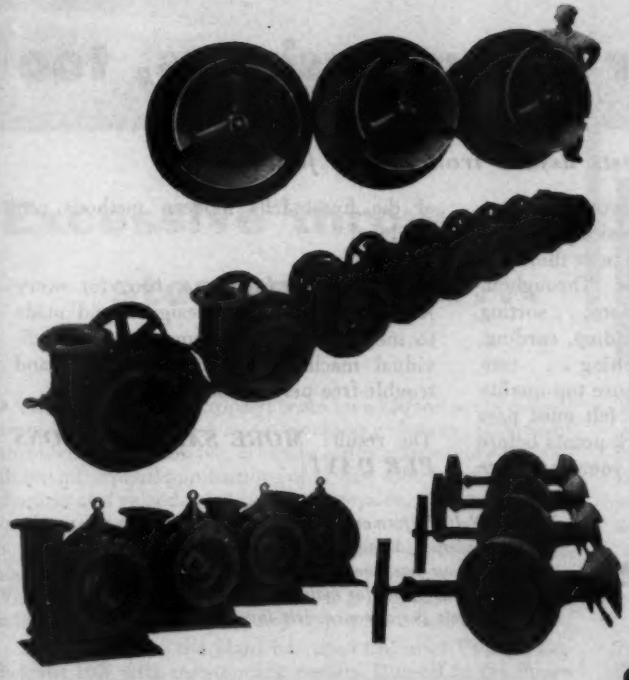
Sandy Hill engineers are completely at your service in helping you plan new pulp and paper mills or improvements in existing ones.

THE Sandy Hill IRON & BRASS WORKS
HUDSON FALLS, N.Y.

VIEWS OF SANDY HILL EQUIPMENT DESIGNED AND BUILT FOR BUCKEYE

Illustration at top shows Fourdrinier which forms waterleaf sheet from high-alpha cellulose pulp. Following in order are first press section, dryer group and constant speed reel.

Buckeye *bleaches* with a modern Sandy Hill Kamyr Bleach System



ELEMENTS OF SANDY HILL KAMYR BLEACH SYSTEM SUCH AS INSTALLED AT BUCKEYE

Illustration at top shows bleached pulp receiving final washing on Kamyr Vacuum Washer. Other pictures, in order, are dilution nozzles and circulation, feed, transport and tangential pumps, all contributing to the high efficiency of the Kamyr Bleach System.

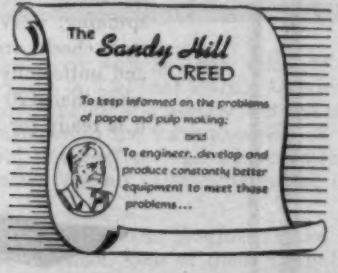
ANOTHER important chapter in the history of paper making in America is written with the opening of the new 25 million dollar high-alpha cellulose pulp mill of The Buckeye Cellulose Corporation at Foley, Florida. This completely modern plant is an impressive representative of current advances in techniques, methods and equipment. And once more Sandy Hill is proud of its opportunity and ability to cooperate with management and planners in the creation of a plant that symbolizes the highest degree of industrial progress.

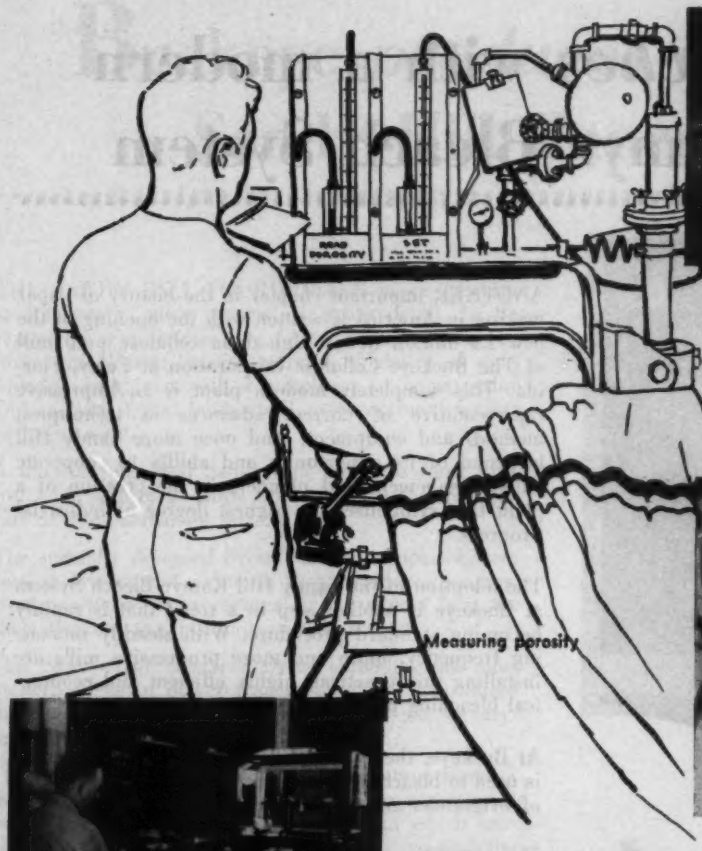
The adoption of the Sandy Hill Kamyr Bleach System at Buckeye is another step in a trend that is rapidly becoming standard procedure. With steadily increasing frequency, more and more progressive mills are installing this practical, highly efficient and economical bleaching method.

At Buckeye, the Sandy Hill Kamyr Bleaching System is used to bleach high-alpha pulp to an unusual degree of brightness and purity.

The revolutionary Kamyr principles, including continuous multiple stage operation, thorough mixing and absorption of chemicals, induced strong horizontal circulation, through the tangential connection of pumps, and separate washings after every treatment, are now accepted as the most effective, most dependable means for producing increased yield of more uniform pulp of higher alpha content.

By every count, the Kamyr Bleaching System produces *more* pulp, *better* pulp, *whiter* pulp, *more uniform* pulp.


The Sandy Hill CREED
To keep informed on the problems of paper and pulp making;
and
To engineer, develop and produce constantly better equipment to meet those problems...



Testing pH in wool scouring

Checking weight of roving

Measuring porosity

Inspection

Testing spun yarn

paper is our business, too

Over 120 separate tests assure trouble-free felts

As part of our constant endeavor to produce better felts for better papermaking, Albany Felt Company maintains the most thorough and rigid quality controls. Throughout every manufacturing operation . . . sorting the raw wool, scouring, blending, carding, spinning, weaving and finishing . . . constant checks are made to assure top quality and uniformity. An Albany felt must pass more than 120 of these check points before it is ready for delivery . . . your assurance of the finest felts modern methods can produce!

Paper is our business, too, for every Albany felt is custom-designed and made to meet specific requirements of an individual machine for finish, drainage and trouble-free performance.

The result: ***MORE SALEABLE TONS PER DAY!***

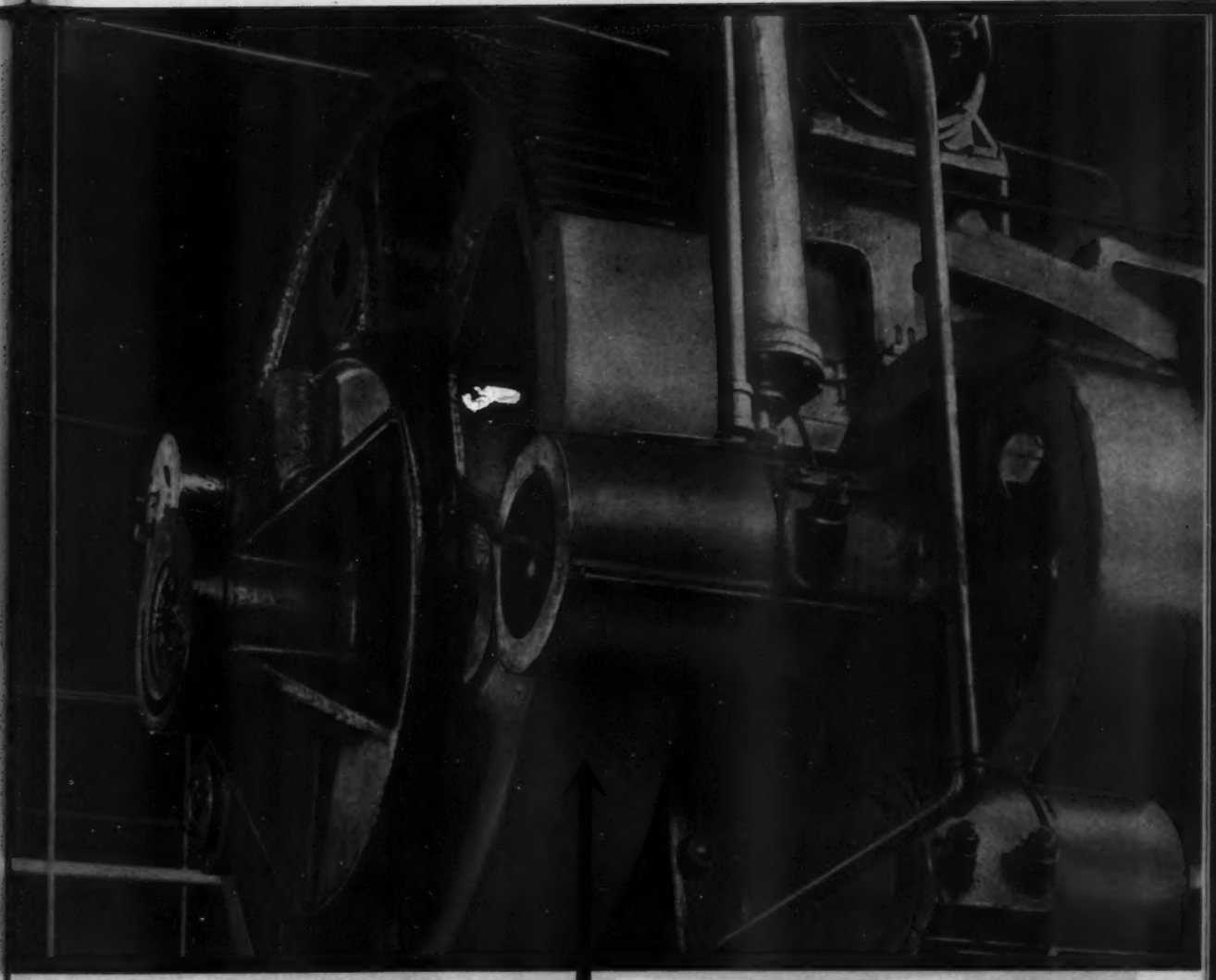
FREE! Felt Performance Record Book for Mill Superintendents, Managers, Purchasing Agents. Write for your handsome leather binder containing convenient forms for maintaining records and graphs of felt performance, felt inventory, etc.

ALBANY FELT COMPANY

"World's largest Manufacturer of Paper Machine Felts"

MAIN OFFICE AND PLANT, ALBANY 1, NEW YORK

Other plants: Hoosick Falls, N. Y., North Monmouth, Maine, Cowansville, Quebec.



Excessive throw-off stopped with . . .

Calumet Viscous Lubricants

• The lubrication of exposed gears on a 250 ton press caused trouble for a midwest metal-working company. Lubricant throw-off was excessive, creating unfavorable working conditions; frequent applications of grease interfered with production and raised lubricant consumption. The gear shield in use required pre-heating.

A Standard Oil Lubrication Engineer surveyed the situation three years ago and suggested the use of Calumet Viscous Lubricant 10X, because it is a grease of superior adhesive quality and does not require pre-heating.

Since that time the plant has used Calumet Viscous Lubricant 10X with outstanding results. Run-off to the floors and other parts has been eliminated. Gears are lubricated with maximum efficiency. Most important, lubricant consumption has been cut by more than 20%.

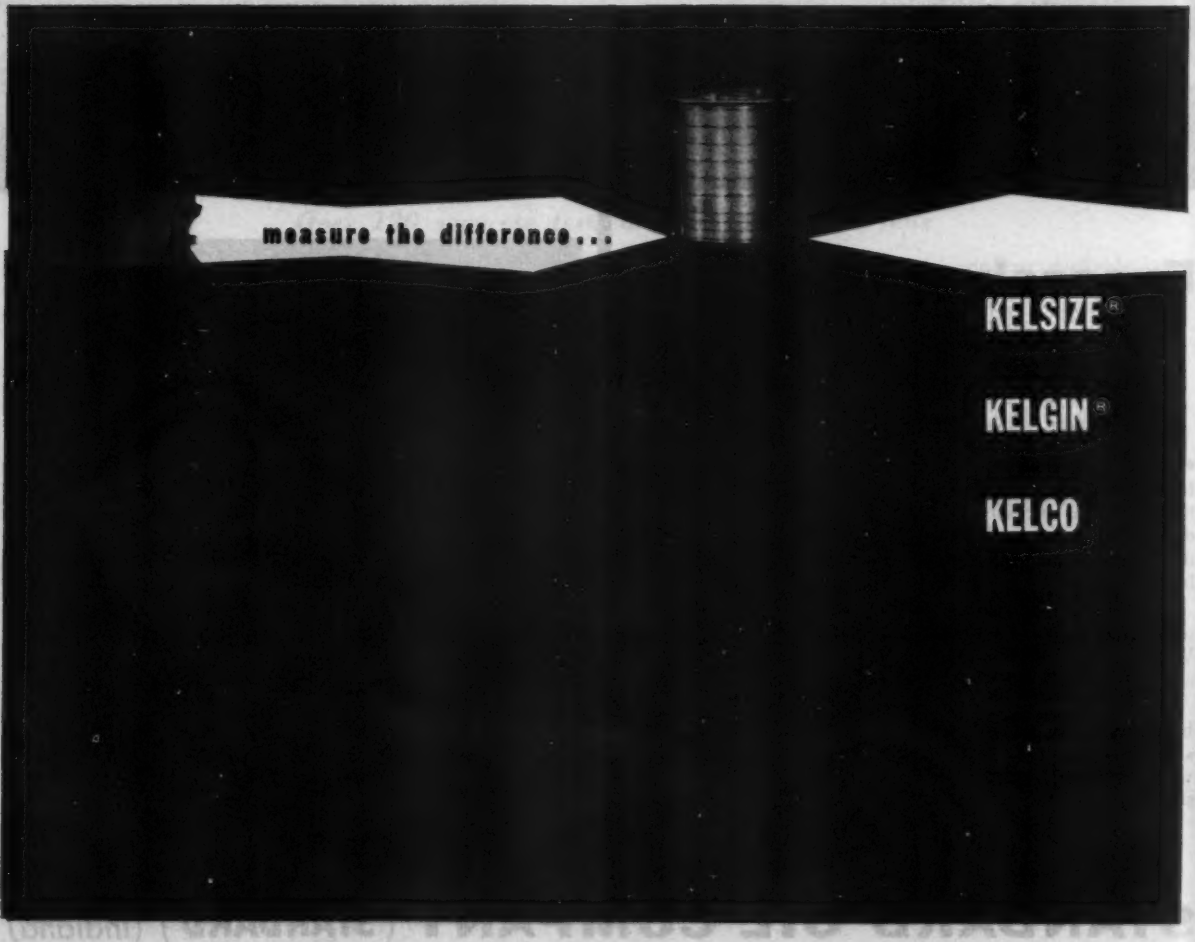
Where open gears as well as some enclosed types are difficult to lubricate, try Calumet Viscous Lubricants. Their superior adhesive quality and greater wetting ability give them high resistance to the washing-action of water and to thinning and throw-off at high temperatures. Several grades of Calumet Viscous Lubricants can be applied by spraying.

Standard Oil Lubrication Engineers are stationed throughout the Midwest. One of these specially trained men is in your area, on the spot when you need him most. To secure his services call your local Standard Oil office. Or write: Standard Oil Company (Indiana), 910 S. Michigan Avenue, Chicago 80, Illinois.

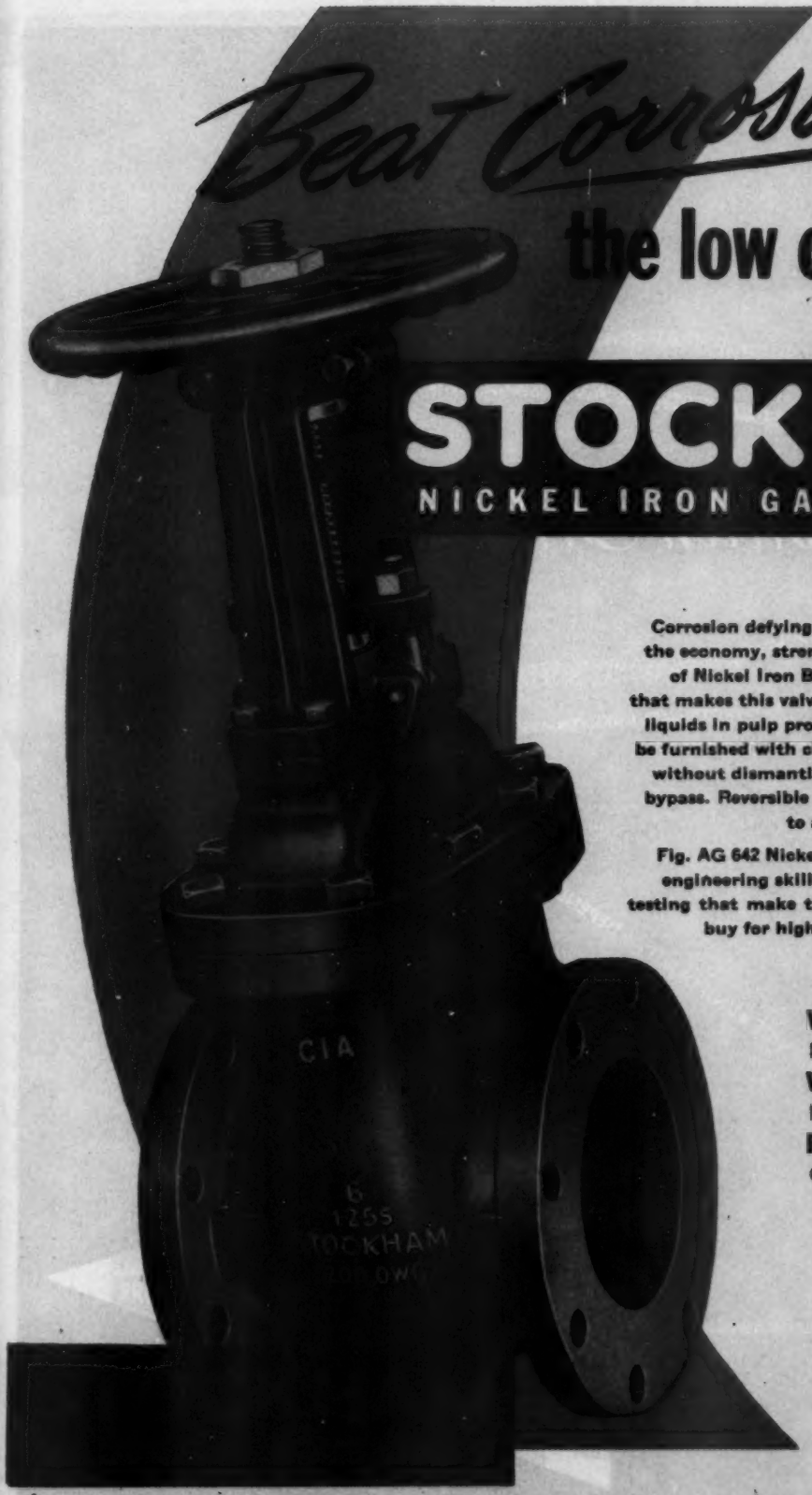
STANDARD OIL COMPANY STANDARD *(Indiana)*

increase **densometer** **fourdrinier**

■ Kelgin in your sizing formulations will increase densometer of Fourdrinier paper and paperboard without adverse effect on other paper qualities. **Check these advantages: 1.** Improved smoothness and finish **2.** More uniform printing surfaces **3.** Greater wax, oil and varnish resistance **4.** Control of porosity



Beat Corrosion the low cost way...



STOCKHAM
NICKEL IRON GATE VALVES

Corrosion defying Stainless Steel Trim . . . plus the economy, strength and corrosion resistance of Nickel Iron Body! That's the combination that makes this valve stand up to line-punishing liquids in pulp processing and mill service. Can be furnished with cleanouts to remove sediment without dismantling valve. Also available with bypass. Reversible solid wedge disc is machined to accurate taper on both sides.

Fig. AG 642 Nickel Iron Gate Valves typify the engineering skill, accuracy of detail and rigid testing that make the Stockham line your best buy for high performance at low cost for every valve requirement.

VALVES:
Bronze • Iron Body • Steel
WEDGEPLUG VALVES:
Non-Lubricated
FITTINGS:
Cast Iron Screwed, Flanged
Cast Iron Drainage
Malleable Fittings
Malleable Unions

GENERAL OFFICES AND PLANT • BIRMINGHAM 2, ALABAMA
Warehouse Stocks and Sales Services Strategically Located
DISTRIBUTED THROUGH WHOLESALERS

Appleton Felts make good paper

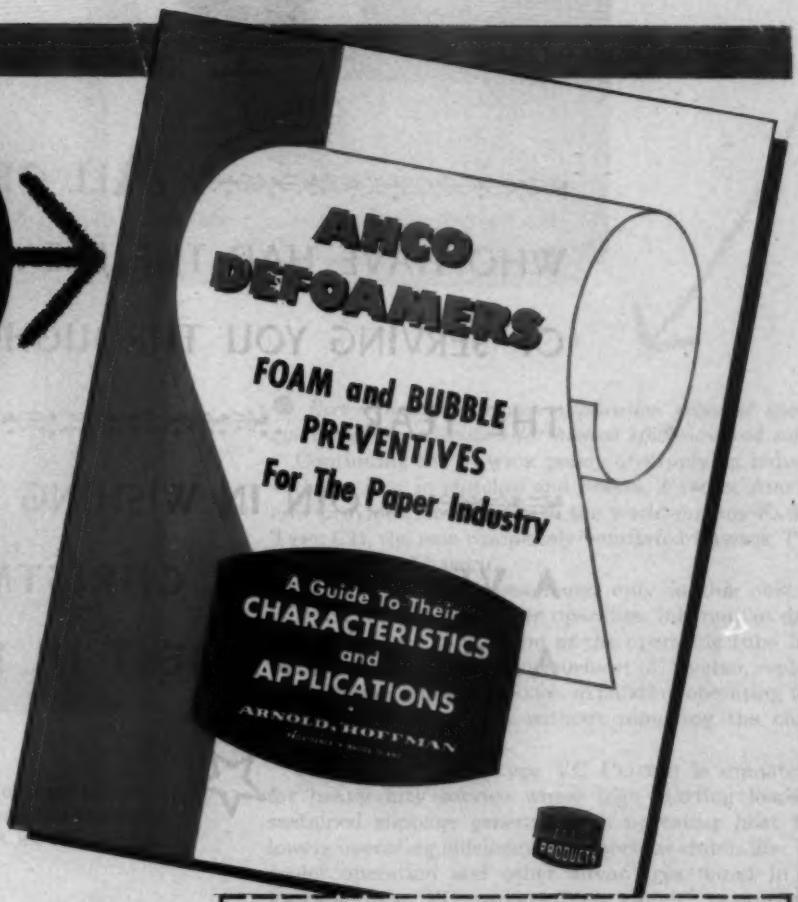
FOR • DESIGN • FINISH • SERVICE • UNIFORMITY • DEPENDABILITY

APPLETON WOOLEN MILLS

APPLETON • WIS.

Stop Foam and Bubble Problems
EFFECTIVELY - ECONOMICALLY
with
AHCO DEFOAMERS

Get this New Brochure NOW!


AHCO DEFOAMERS
FOAM and BUBBLE PREVENTIVES For The Paper Industry
A Guide To Their CHARACTERISTICS and APPLICATIONS
ARNOLD, HOFFMAN
AHCO PRODUCTS

This AHCO DEFOAMERS BROCHURE was prepared especially to help you if your problem is excessive foaming or bubbling during paper production. In it the complete line of AHCO DEFOAMERS is detailed fully . . . one of these AHCO DEFOAMERS could be saving you costly headaches. USE THE COUPON NOW.

AHCO PRODUCTS

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PROVIDENCE • RHODE ISLAND
Associated with Imperial Chemical Industries Ltd., London, England
ARNOLD, HOFFMAN & CO., INCORPORATED • ESS. 1815 • PROVIDENCE, R. I.
Offices and Sales Service Laboratories:
Providence, R. I., Charlotte, N. C., Tonawanda, N. Y.

Arnold, Hoffman & Co., Inc.
55 Canal Street
Providence 1, Rhode Island

Gentlemen:

Please send me a copy of your new AHCO DEFOAMERS brochure.

Name and Title.....

Firm Name.....

Address.....

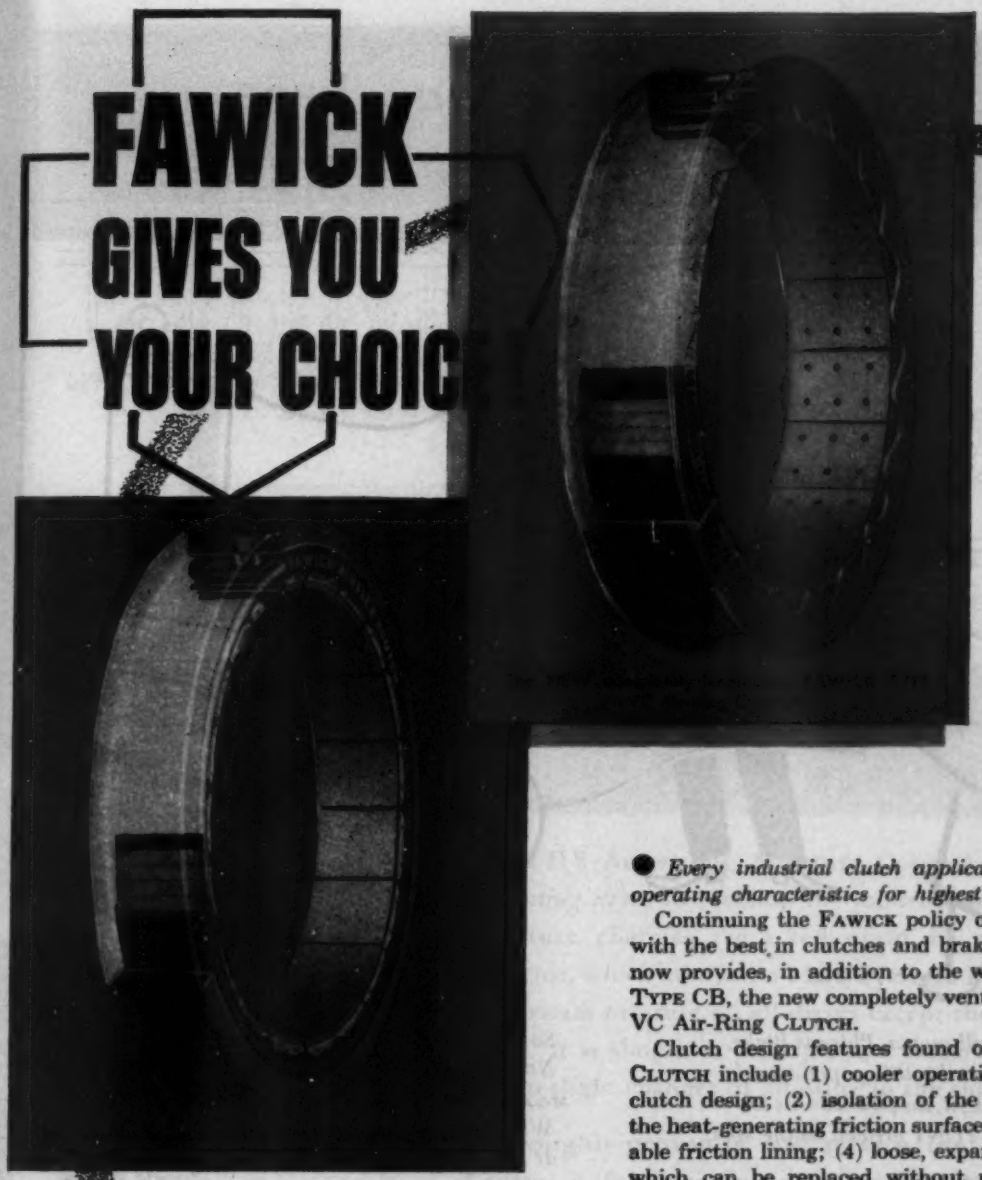
City..... State.....

Christmas 1954

ALL OF US
WHO HAVE HAD THE PLEASURE
OF SERVING YOU THROUGHOUT
THE YEAR . . .
JOIN IN WISHING YOU
A VERY MERRY CHRISTMAS
AND ALL THE BEST IN 1955

The Officers and Employees of the
LOCKPORT FELT COMPANY
NEWFANE, NEW YORK

FAWICK GIVES YOU YOUR CHOIC



● *Every industrial clutch application requires specific operating characteristics for highest efficiency and safety.*

Continuing the FAWICK policy of supplying industry with the best in clutches and brakes, FAWICK AIRFLEX now provides, in addition to the world-famous FAWICK TYPE CB, the new completely ventilated FAWICK TYPE VC Air-Ring CLUTCH.

Clutch design features found only in this new VC CLUTCH include (1) cooler operation inherent in drum clutch design; (2) isolation of the operating tube from the heat-generating friction surface; (3) riveted, replaceable friction lining; (4) loose, expanding operating tube which can be replaced without removing the clutch from the shaft.

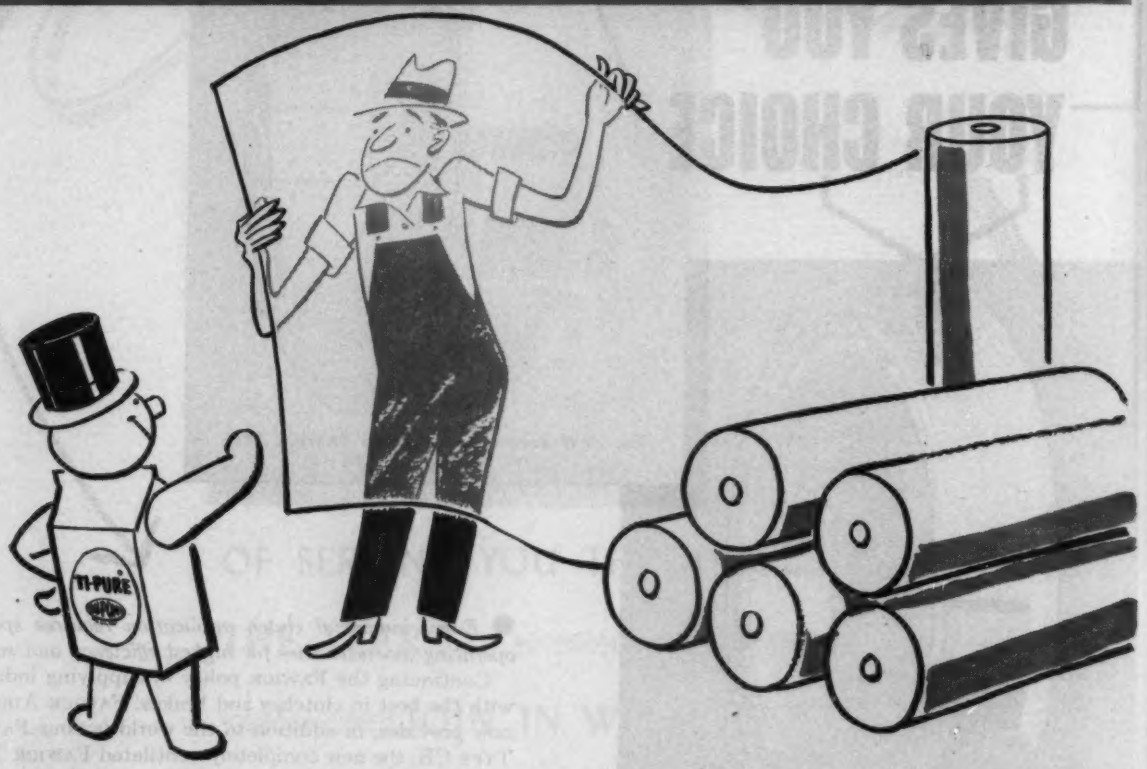
This FAWICK rigid-type VC CLUTCH is unmatched for heavy-duty service where high starting loads or sustained slippage generate high operating heat that lowers operating efficiency and shortens clutch life. The cooler operation and other advantages found in the FAWICK TYPE VC provide "new clutch" performance throughout a long, maintenance-free life.

For Further Information write for Bulletins 400-A and ML-102.

FAWICK AIRFLEX DIVISION
FAWICK CORPORATION
9919 CLINTON ROAD • CLEVELAND 11, OHIO

FAWICK Airflex
INDUSTRIAL CLUTCHES AND BRAKES

"Your paper's not opaque, I see — Let Ti-Pure® fix that instantly!"



There once was a mill owner, Phineas Blake,
Whose job was to make his thin paper opaque.
Try what fillers he might, despair was his lot
Till TI-PURE of DU PONT arrived on the spot.

"Phineas," said TI-PURE, "it's really worth noting,
How you can curb 'show-through' with me in your coating.
Like all Du Pont pigments, I've been put to the test;
I'll give you results that are always the best!"

So Phineas put TI-PURE in his coating machine,
Now his paper's opaque—the brightest you've seen.

MORAL:

Why you should use TI-PURE is quite plain to see:
It gives whiteness...and brightness...and opacity!

• • •

Du Pont now offers a direct-to-you field service on TI-PURE titanium dioxide pigments. Technical experts, backed by a modern paper laboratory, will be glad to help you with your pigmenting problems. Call our nearest office for details.

PROMPT, NATION-WIDE SERVICE THROUGH THESE DU PONT DISTRICT OFFICES* AND WAREHOUSES:

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*Cleveland, Ohio
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New Orleans, La.
*New York, N. Y.
*Pasadena, Calif.
*Philadelphia, Pa.
*Portland, Ore.
St. Louis, Mo.
*San Francisco, Calif.
Seattle, Wash.

DU PONT

Ti-Pure®
TITANIUM DIOXIDE

TI-PURE gives your paper:

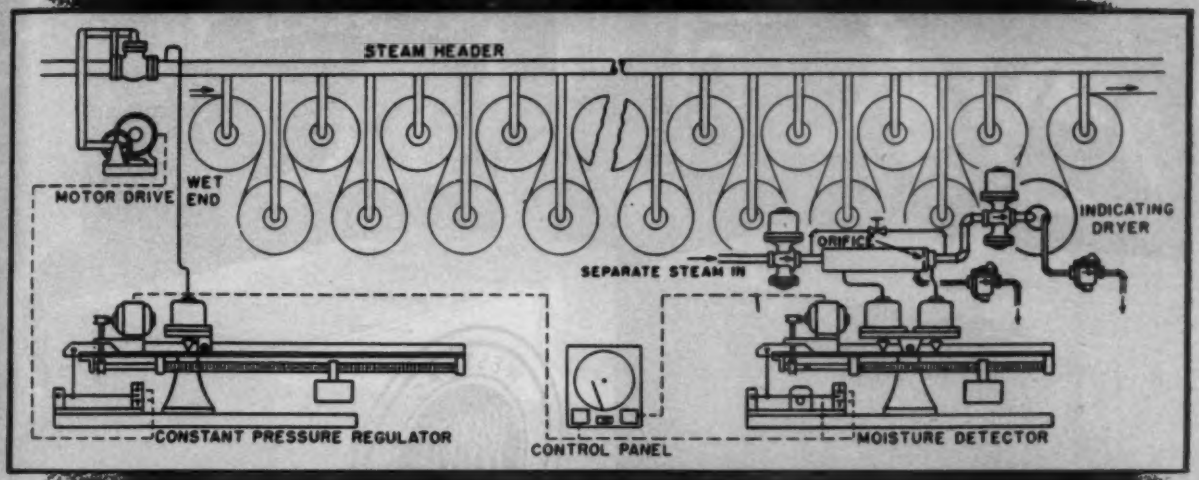
WHITENESS. Lasting whiteness in food wraps and containers, waxed board, glassine, and parchment.

BRIGHTNESS. Permits sharp reproduction of printed matter in porous papers, such as magazine and book stock.

OPACITY. No "show-through" in lightweight papers, envelope and stationery stock.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY
E. I. DU PONT DE NEMOURS & CO. (INC.), PIGMENTS DEPARTMENT, WILMINGTON 98, DELAWARE

HERE IS A *MOISTURE CONTROL* THAT REALLY WORKS...



ARMSTRONG MOISTURE CONTROL FOR PAPER MACHINES

Automatically holds very uniform moisture in either board or fine paper.

•

Acts on *average* moisture content across entire sheet to avoid over-control due to wet spots.

•

Sensitive . . . Responsive—steam pressure may be varied as little as 1 lb/hr or as much as 1½ lb/min, depending on variations in the sheet.

•

Ruggedly constructed for long, trouble-free service.

•

Makes possible higher average moisture and uniform quality.

THE Armstrong Moisture Control utilizes an *indicating dryer* to measure the moisture in the sheet. Moisture changes are acted upon by a Moisture Detector, which controls a Main Pressure Regulator to vary steam pressure on all dryers except the indicating dryer. It is simple in principle and remarkably sensitive to slight changes of moisture in the sheet.

Thoroughly proven in mill service, the Armstrong Control is *fully guaranteed* to satisfy. Use the handy coupon below to find out more about "the Moisture Control that Really Works".

ARMSTRONG MACHINE WORKS
816 Hoffman Street, Three Rivers, Michigan

SEND FOR NEW BULLETIN

ARMSTRONG MACHINE WORKS
816 Hoffman Street • Three Rivers, Michigan

Please send new Moisture Control Bulletin to:

NAME _____
Please Print
COMPANY _____
STREET ADDRESS _____
CITY _____ STATE _____

MOISTURE CONTROL... INDIVIDUAL DRYER TEMPERATURE CONTROL ... DRYER DRAINAGE TRAPS ... STEAM HUMIDIFIERS

HAM FELTZ says:

Publishers of books, magazines and trade papers are running such enormous editions nowadays that they use incredible amounts of paper—coated, calendered and machine finished.

Naturally they look to manufacturers like West Virginia Pulp and Paper Company as dependable sources of supply.

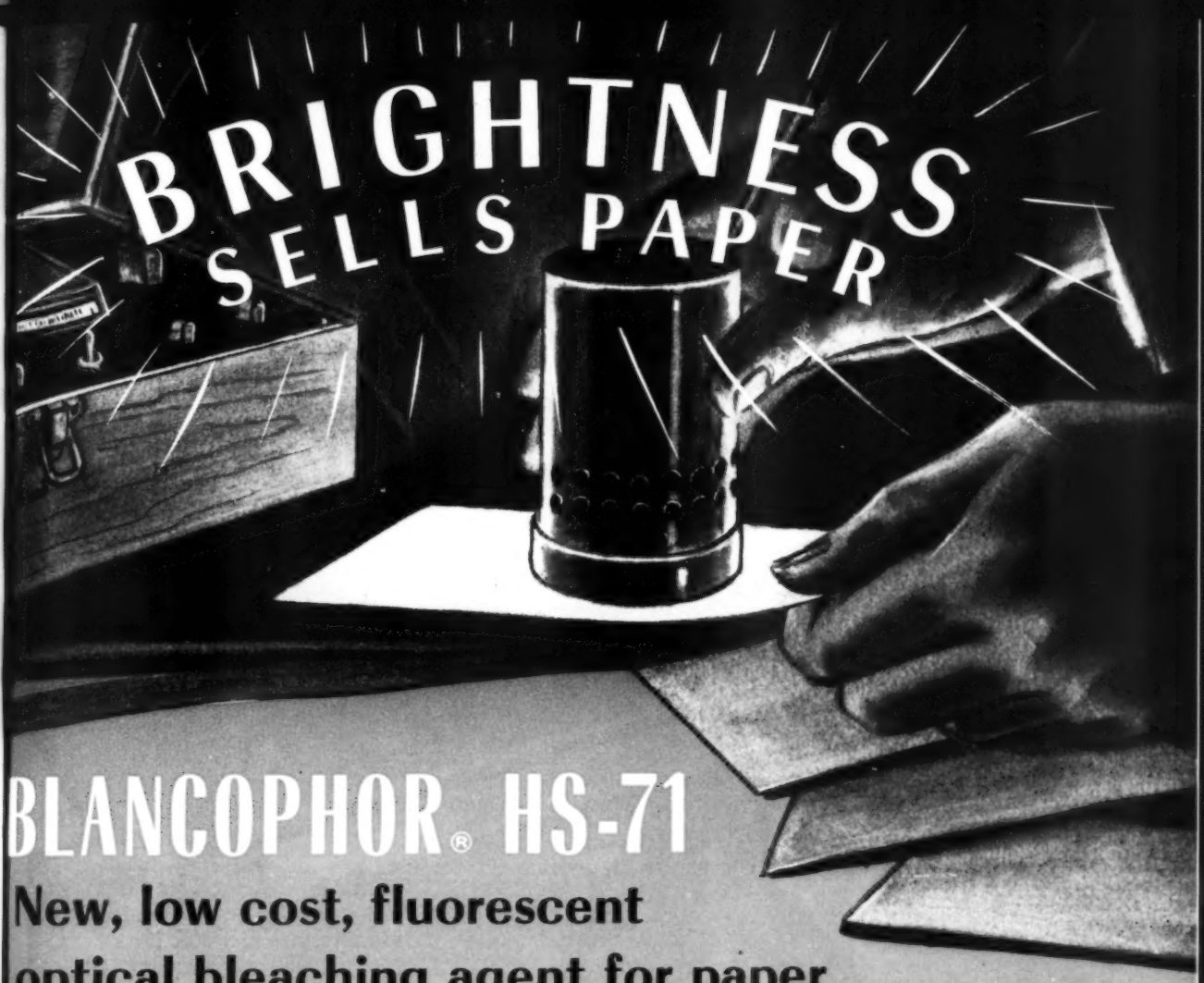
West Virginia, in turn, looks to dependable sources for felts that can stand up under long runs and high speeds at their paper machines and still give perfect finish to their sheets.

West Virginia is a mighty good customer for . . .

Hamilton Felts

MIAMI WOOLEN MILLS *Established 1858*

SHULER & BENNINGHOFEN, HAMILTON, OHIO



BLANCOPHOR® HS-71

New, low cost, fluorescent optical bleaching agent for paper

The new BLANCOPHOR HS-71 which shows exceptional solubility in water is recommended to improve visual brightness of white papers by coloring in the pulp, on the surface or in coating applications.

When applied to paper, BLANCOPHOR HS-71 yields brighter whites without the pinkish cast of the usual paper brighteners.

Papers colored with BLANCOPHOR HS-71 show excellent resistance to attack by acidic atmospheric gases by retaining their brightness.

Write today for information on BLANCOPHOR HS-71.

From Research to Reality

ANTARA gaf

ANTARA® CHEMICALS

A SALES DIVISION OF GENERAL ANILINE & FILM CORPORATION

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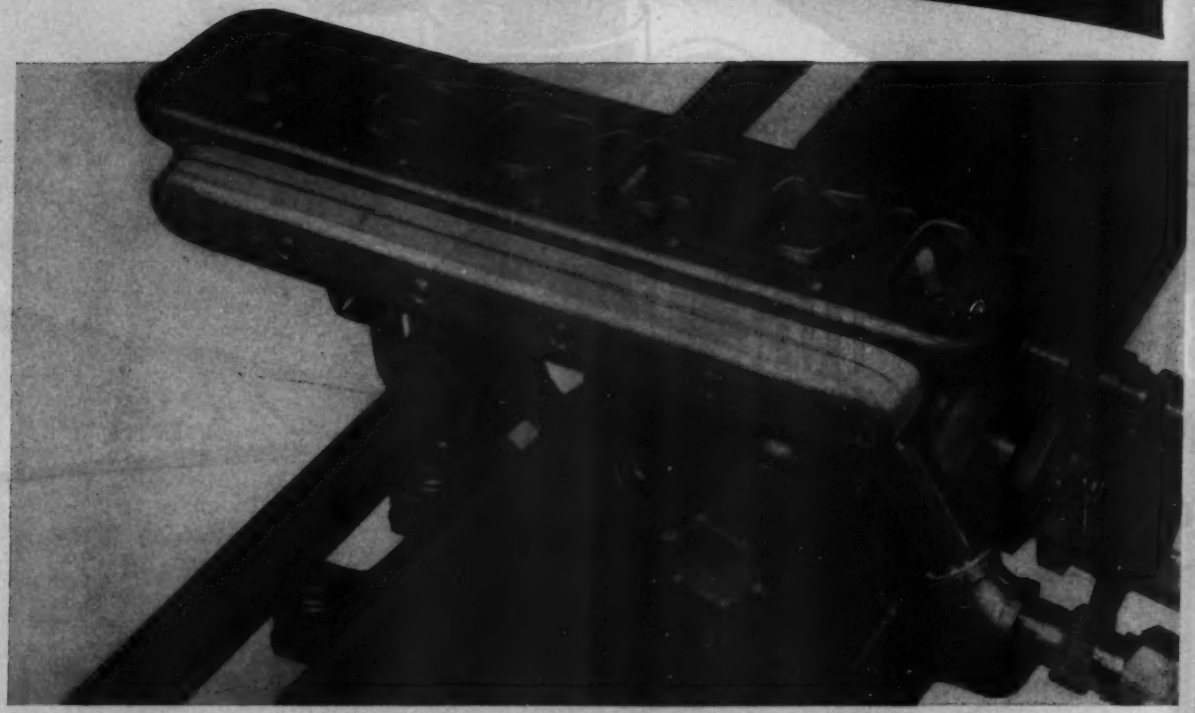

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CURRENT COMMENTS

Price-fixing and mergers . . . square dancers . . . and election aftermath

"Guilt by Trade Association" is the phrase used by Lowell B. Mason, a member of the Federal Trade Commission, in a blast at the theories advanced in a price-fixing case involving a thousand — more or less — paper merchants and distributors. The commission has been busying itself with another phase of paper industry operations, an investigation of various mergers of paper manufacturing companies. In other words, price fixing and charges of monopolistic developments have featured the month in Washington circles.

Commissioner Mason's outburst came in an opinion in which he concurred with his fellow commissioners in an order to the National Paper Trade Association, 22 regional associations, and 100 paper distributors to refrain from price-fixing practices. They were forbidden to conspire to fix prices and to circulate publications giving the national average percentage mark-ups for individual paper items.

The order, however, dismissed price-fixing charges against some 900 other paper merchants who are members of the various trade associations, but not specifically named in the complaint. The majority opinion based the dismissal of the charges against the 900 merchants on the ground that an order to these merchants would not be in the public interest and did not rule on the power or jurisdiction of the Commission to bring representative class suits.

Basic concepts subverted

Mr. Mason, in concurring with the action, stated vehemently that the reason for the dismissal was wrong in theory. He said, "In my opinion, mass conspiracy charges using the class suit theory subvert the basic concept of our forefathers, which maintains that every man is entitled to his day in court." He added that, "When the government attempts to parlay a conspiracy suit valid against a hundred defendants into a cease and desist order against a thousand for no reason other than that they all belong to a trade association, it is time we took one look at the charge, two at the evidence, and three long looks at the procedure which defiles so many on so little."

Mr. Mason pointed out that some of the uniform prices established in the industry stemmed from government price-fixing regulations under the New Deal regimentation of industry in World War II, "For business men quoting prices are like square dancers—advancing, bowing and retreating—as they follow the intricate patterns called by Government."

In some quarters the decision exempting these 900 merchants from the commission ruling is considered as offering new hope to trade association executives and the small trade association.

Anti-trust violations

Meanwhile, the Federal Trade Commission has acted vigorously to investigate the wave of mergers in various industries, including the paper industry. The Bureau of Economics has been ordered to make an intensive and immediate investigation into recent corporation mergers and acquisitions and report within a very few months. The results of the investigation will be made available to the Department of Justice, which would be responsible for the prosecution of any violations of the anti-trust laws. The industries involved include the paper industry as well as the baking, textile, dairy, chemical, automotive and primary metals industries. In the paper field specific mention is made of the acquisition by Crown-Zellerbach of St. Helen's Pulp & Paper, in which legal proceedings are already under way. Paper industry people can readily recognize some of the mergers which have recently been effected, though no specific mention is made of these other companies in the Federal Trade Commision's announcement.

Some of the mergers may be considered justifiable, and the investigation will analyze the motives and causes underlying recent mergers, such as (A) the desire for product diversification; (B) the desire to lessen competition; (C) the desire on the part of small and medium size firms to grow rapidly through external expansion so that they might more effectively compete with the larger firms already established in the industry; (D) the extent to which acquisitions were caused by the financial failure of the acquired firm, and (E) the desire on the part of firms to integrate forward to a higher stage of fabrication or backward to raw material sources.

Economic upsurge

The increasing prosperity of the paper industry is again in evidence, with the rapid upsurge of prices for paper mill securities, based on economic estimates of the future, not on gambling instinct. That the world consumption of paper will rise to 65,000,000 tons by 1962 is the estimate of the Food and Agriculture Organization of the U.N., as presented to a group of experts now in session at Buenos Aires, which is planning to increase the production of paper in backward papermaking countries. The United States consumption will constitute a major portion of this increase. Some economists expect an increase in American consumption to 50,000,000 tons a year in the not too distant future, or nearly a 100 per cent increase over present usage.

The National City Bank of New York has issued a breakdown of corporation earnings for the first nine months of 1954 as equivalent to those of the same period in 1953, despite the widespread political talk of a national recession in business. In the paper field, however, the report covers 27 companies, whose av-

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erage earnings for the comparative periods show an increase of 7 per cent over 1953. The improving state of the industry is further shown by the fact that the increase in the third quarter was 10 per cent over that quarter in 1953, a clear picture of an upsurge after the first half of the year.

Victory for business

The election has come and gone. To judge by the action in the nation's markets, it was clear victory for business, though a Democratic Congress will now be in the saddle. To complete the metaphor, however, it should be indicated that the Democratic majority is so slim that President Eisenhower still holds the reins.

One of the first items of business of the new Congress will be the President's program for improving international trade by reduction of tariff barriers. The chairman of the new Democratic Ways and Means Committee will be Congressman Jere Cooper, an avowed free trader.

Stock and Bond Quotations

New York Stock Exchange — Stocks

Closing Price	Nov. 10, 1954	Oct. 11, 1954
A.P.W.	3⅝	3⅛
Celotex	20	22
Same Preferred	*18⅛-18⅛	18⅛
Certain-Teed Prod.	23⅜	18⅞
Champion P & F	53¼	*38-39
Same Preferred	*105½-106	105¾
Chesapeake Corp.	*38⅝-39⅝	36⅝
Container Corp.	62⅝	61⅜
Same Preferred	104	104
Continental Diamond	12½	13
Crown Zellerbach	59½	55⅛
Same Preferred	*104-104¾	*104⅜-105¼
Dixie Cup	58¼	54⅛
Eastern Corp.	21½	21⅝
Robert Gair	26⅛	26⅛
Gaylord Container	35	32⅞
Great Northern	70	66½
Hammermill	23¼	18⅜
International	86⅛	78⅜
Same Preferred	*105½-106½	*105-106½
Kimberly-Clark	39⅛	36⅜
Same Preferred	*156-160	*143¼-147½
MacAndrews & Forbes	46	*46⅜-47
Marathon	28	26⅞
Masonite	24¼	20⅝
Mead Corp.	46⅝	38⅛
Same Preferred	*98¼-99	98½
National Container	12⅜	12⅝
Same Preferred	25¼	23⅞
Rayonier Inc.	54½	46¼
Same Preferred	38¼	39
Scott Paper	52	52⅛
Same $3.40 Pref.	*95-95¼	*94¼-96
Same $4.00 Pref.	*107-108½	*105½-106
St. Regis Paper	34⅛	34⅜
Same Preferred	102¾	*103-103¼
Sutherland Paper	41	43
Same Preferred	48½	*147-155
Union Bag & Paper	...	62⅜
United B & C	68⅝	17⅛
United Wall Paper	*19½-18⅝	2
Same Preferred	1⅜	*15½-17
U. S. Gypsum	*16½-17	187
Same Preferred	215	*181⅛-183
West V P & P	*182-184	32⅜
Same Preferred	35	
	*108-111	108¾

New York Stock Exchange — Bonds

Celotex 3¾%	....	....
Champion P&P Co 3¼	....	....
Mead Corp 2⅞	....	....

American Stock Exchange — Stocks

American Writing	17	16⅛
Brown Company Common	16⅞	16⅛
Same $5 Preferred	110	115½
Same $3 Preferred	55	57⅝
Puget Sound		40

*Closing Bid and Asked Prices.

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The new Penford Gums are more reactive with synthetic resins, exhibit less tendency to set back or gel and are more resistant to spoilage. The films of Penford Gums are clearer, stronger, more flexible, and more grease resistant.

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The Paper Industry

December 1954

Market development problems—a summary of comments

AMONG THE TALENTS that develop dependable markets through sustained and constructive selling are: (1) personality, (2) product "know-how", (3) the ability to express yourself concisely and accurately so that your customer will understand you, (4) the ability to understand the customer, his prejudices, and his problems, and (5) the art of effective merchandising.

The intelligent application of selling skills and talents in combination with a product promotion program — which entails (a) advertising, (b) preparation and distribution of relevant literature and samples, (c) providing technical service, and (d) presentation of technical papers — has been the key to success for many currently flourishing enterprises.

The important factors to consider in market development are: (1) the manufacture of a quality product that meets the requirement of the customer and provides a fair profit for the distributor, (2) attractive packaging, (3) effective advertising to build a strong and lasting consumer desire, and (4) procurement of necessary manpower to promote and sell at wholesale and retail levels.

A prerequisite to finding new markets is the development of new uses for paper products in homes, industries and institutions. A most rewarding approach to this end is the study of ways and means of substituting paper products for the non-paper items currently in use. Economic thinking is recommended, especially in this line of activity. A thorough economic survey should be made, so that sales efforts will not be concentrated on relatively unprofitable items or dissipated in areas of low demand-potential.

While many salesmen, especially those with experience in a seller's market, feel uneasy about their performance in a competitive market, it is suggested that a competitive market is actually the one best suited for the promotion of a superior product. Consumer acceptance in a competitive market, accordingly, can be stimulated in one of two ways:

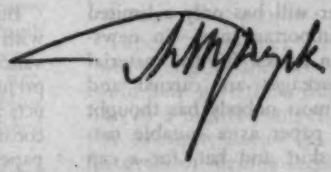
(1) Selling a superior product on its merits;
(2) Selling an inferior product on its price.

Consumer acceptance depends on the value a product or a service offers, and these values relate to performance, availability, prestige and price. Analyzing consumer prejudices and objections, with the view to overcoming these, is an activity that should rank high in a market development program.

Ways must be found to attract better talent to the merchandising field. Special efforts in merchandising have been heretofore neglected, but this operation is rapidly ascending to its proper level of importance in the market development program. Merchandising must be endowed with more glamor than it has held in the past. A competitive survey of how the company stands quality-wise, distribution-wise, and packaging-wise, in respect to its competitors in the industry must be carried out by a staff as competent as that in product development. Team work is one of the most important requirements, in this type of activity.

Attention is drawn to the fact that a small enterprise, which is in no position to have its own permanent market development facilities, can avail itself of competent services provided by private, professional, or technical organizations and institutions. There are many universities which have the research-brains, technical "know-how", and a general awareness of trends and developments in the pulp and paper industry. These are pre-eminently qualified to provide market research services.

And finally, a strong need is felt for revision in the presentation of government data sheets, since the present survey and census figures do not adequately express the breakdown of the paper grades now available.



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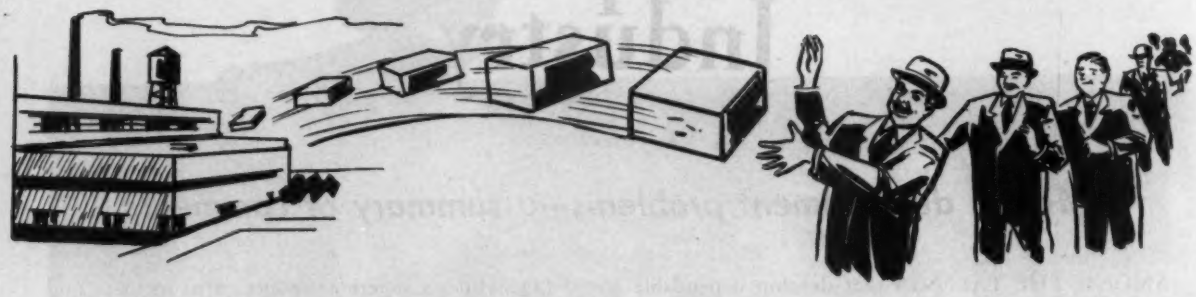

Stimulating and increasing consumer acceptance of paper

CLEM W. KOHLMAN
Advertising Mgr. Industrial Chemicals Div.
American Cyanamid Co.

Changing consumer prejudices—while not easy—can be achieved through continuous flow of information from (a) the mill to the consumer, and (b) the consumer to the mill

INCREASED ACCEPTANCE of paper hinges on consumer awareness of what paper can do for him. In addition to many important traditional uses, paper is now an effective substitute for textile fabrics; in the form of paperboard it replaces wood crating; paper is widely used in packaging—alone and in combination with other materials; paper is a basic material in building construction. Paper is indispensable to our modern way of living. It serves an increasing variety of human needs.

For many of the 160,000,000 consumers, paper still has only a limited number of important uses—in newspapers and in books. It's the material in which packages are carried and wrapped. Almost nobody has thought much about paper as a suitable material for a skirt and hat, for a cap and gown—to say nothing of a bathing suit.

Unusual as skirts and hats may seem, they are potentially among the many new paper products of the future, thanks to the amazing technological progress made by the industry. Today, there are thousands of new grades of paper with new and improved qualities—softness combined with strength when wet or dry, paper with two-way stretch, flame-resistant paper, rust-inhibiting and bactericidal papers—to pick out only a few. These added qualities widen the applications for paper. They are plus values that make paper more saleable than ever before.

Changing consumer prejudices

But consumers are not yet familiar with these new and important advances in paper qualities. The old prejudices against many paper products are still interfering with increased consumer acceptance of paper. Take paper table covers, for example. Many people feel apologetic about using them. They have had many experiences in which the paper covers failed to completely do the job expected of them. The result is that paper table covers, as well as other paper products, become fireside Cinderellas—all right to use around the house, except when friends and neighbors are visiting.

Even today, with paper table covers on the market that keep their strength when wet, there is much resistance to using them. Until consumers are fully aware of the new qualities, the added selling power and profit to papermakers and increased usefulness to paper users are lost.

Changing consumer prejudices isn't easy. Perhaps we can help solve the problem by providing a more continuous flow of information from the mill to the consumer and back again. What better way is there to insure the sale of a product than to find out first what people want? And who is in a better position than converters and merchants to help supply this information to the mill? The paper manufacturer can translate this information into the kind of papers that have the widest acceptance in finished products people will buy. And the consumer needs to know what kind of paper products are available. This kind of communication between paper-

She's wearing a skirt made from a new woven paper fabric called Melo-Weve, one of many sold in New York department stores during the past summer

Boys study a U. S. Air Force map of the Korean campaign. This is one of millions of maps made from Melostrength paper and used during wartime. In tests, they remained useable even after being trampled by a regiment of GIs, beaten in mud, scrubbed with hot soapy brushes and run over by a tank

makers and paper users has not yet been fully achieved. The more nearly this ideal is achieved, the more rapidly will paper consumption increase.

Take wet-strength papers, for example. The first commercially feasible method for making paper that keeps its strength when wet was developed by American Cyanamid Co. in 1942. The method involved the beater addition of a melamine type resin. The resin was first used in large scale to manufacture paper for army combat maps. After the war, many papermakers experimented with wet-strength paper products for civilian consumption. By 1952, more than 2,000,000 tons of papers containing melamine had been sold in stores across the nation.

A survey in 1952 covering many of these stores revealed that not one single sales manager, not a merchandising manager or salesman knew about wet-strength paper, although in every case some wet-strength paper products were on the shelves and being sold in stores tested.

A market through consumer information

This experience led American Cyanamid to conclude that there could be far larger and newer markets for paper that keeps its strength when wet — if the consumer were informed. The company adopted the Melostrength trade-mark to make it easy for consumers to identify paper products made with Cyanamid's Melostrength resin.

To reach consumers with the story of Melostrength paper an educational press conference was held for representatives of the nation's newspapers and magazines. Among the exhibits at the conference was a 1-in. wide strip of Melostrength paper from which a concrete cinder block was suspended in water. There were children in Melostrength paper bathing suits, worn in a backyard pool, and there were, of course, more ordinary products such as freezer wrap, boxes, towels and napkins — all made of wet-strength paper containing the resin.

More than 20 paper companies participated in providing material for the display. Purpose of these exhibits was to answer questions as: "What is paper made of?" "How does wet-strength paper differ from ordinary paper?" "What are the advantages of wet-strength paper to consumers?" "How can wet-strength papers be identified by consumers?"

Editors got their answers in a form they could use. They put paper in the news. And they featured paper in their magazines.

A story in color photos showing people wearing paper bathing suits made of Melostrength paper appeared in *Collier's*. *Life* magazine ran a story about a Star Class sailboat fitted with a Melostrength paper sail that survived the lashing spray of Long Island Sound.

The impact of these two stories alone brought thousands of letters from people and companies all over the nation. Many other letters referred to newspaper articles about wet-strength paper. People asked, could Melostrength paper be made into caps and gowns? What about sheets and pillow cases? Can we get disposable Melostrength paper garments for our factory workers? One eastern university yacht club wanted to fit all their dinghies with paper sails.

Public imagination had been stretched and jolted out of the old idea that wet paper must be weak paper. The paper industry had begun to successfully communicate with paper users through newspapers and magazines that people enjoy reading.

Paper companies realized that "wet-strength" sold as Melostrength could help give them improved position in a highly competitive market. For example, Rieser Co. Inc., manufacturers of Venida facial tissues, redesigned their package to include the Melostrength trade-mark. They increased their advertising budget to help spread the word.

There were others, like Sterling Pulp & Paper Co., which makes paper towelling containing Cyanamid's resin. The firm manufactures

(Turn to Page 912)

Market Development - - - creating a market

How does a paper company develop a market?

KENNETH D. LOZIER
Advertising and Sales Promotion
St. Regis Paper Co.

▶ Selling "all the way through"—not only to the customer but also to the customer's customer—has been so effective that today 90 per cent of the national flour output moves in multiwall bags

HOW TO DEVELOP A NEW MARKET and how to extend the market for established products? These are two questions which have challenged the imagination and resourcefulness of men from the time that they were selling better stone axes and introducing arrows with the new flint tip.

We have made great progress since those early days, but it is still true that the manufactured product must have sales appeal. As we state it, we must sell the product with maximum efficiency and profit and find the market where it can be best exploited. We have found that this often means selling not only the customer, but also the customer's customer.

Selling all the way through

One of the best examples of this sales technique — which we term selling all the way through — is our diversification of markets for the multiwall bag. Since the late 1920's, St. Regis has been the world's largest manufacturer of heavy-duty multiwall paper bags. These are industrial containers which originally held 94 lb. of cement, 50 lb. of lime, and 80 lb. of plaster, and served only the construction industry.

With the depression in 1931 and 1932, construction slumped; and the multiwall bag industry, which depended upon construction, almost went into complete eclipse. However, under a new management headed by Roy K. Ferguson, president and chairman of the board, a sales policy of diversification of product and market began to take shape. We multiplied the use of what was basically the same bag, many times by finding new markets. Two of these new markets, flour and feed, are among our most important markets today.

The bakery flour industry, with its eight million tons of flour, uses 160 million 100-lb. bags per year. In the late 1930's, some of the large and progressive bread bakers had been calling on us for multiwall bags that could be handled economically in the flour mill packing operation and afford them the convenience and protection of paper.

Sanitation standards slumped during World War II, and any container which could convey the material reasonably well to its destination was adequate. At the close of the war, sanitation standards were again enforced, and bakery flour was a notable example.

Just about this time, the St. Regis machine shop developed an automatic packer, which, operated by one man, would pre-weigh 100 lb. of bakery flour, propel it into a multiwall paper valve bag, and automatically deliver finished closed containers at the rate of six bags per minute. This multiwall bag offered the barrier of multiple walls of kraft against entry by insects and contamination by germs and dirt, as well as a cleaner, more economical operation.

The leading millers told us they liked these and other advantages of the multiwall bag and the mechanized packing. However, they pointed out that their business was highly competitive and that they couldn't afford to try to force their customers, the bakers, to accept the new container.

We had sold our customer, who, however, would not buy until we had sold his customer.

How did we lick the problem? We recruited a field promotion force of young men who called on the big bakeries throughout the country. They carried a supply of 100-lb. multiwall bags, often actually filled with flour. Their job was to interest bakery management in the advantages of the clean, new multiwall paper bags as protection against contamination and as a one-time container, thus avoiding the problem of re-used fabric bags. This promotion group sought to have the baker agree to take part of his next order in multiwalls. The next day, a letter was

Cleanliness and protection against insect infestation are two of the major factors which caused bakers and millers to be enthusiastic about flour packaged in multiwall paper bags

Packaging manufactured feed in the easy-to-handle 50-lb. multiwall paper bag. The smooth surface of the bag can be printed with a colorful design to obtain maximum merchandising value

sent to each mill named as a supplier, reporting the interview accurately, no matter whether good or bad.

This didn't necessarily mean that the baker who agreed to take flour in multiwall bags would demand St. Regis paper — our competitors shared in the benefits.

This job of selling all the way through meant selling the customer and the customer's customer, reporting daily to our customer and prospect, advertising in milling and bakers papers, keeping a stream of publicity flowing, talking before milling and baking groups, and emphasizing everywhere the advantages of sanitation for food products.

Results achieved? Today, over 90 per cent of baker flour moves in multiwall paper bags as compared with less than 10 per cent ten years ago.

Multiwalls for feed

A parallel and more recent move has been into the manufactured feed industry — the formula feed supplied for poultry, hogs and cattle — amounting to 35 million tons a year. In terms of 100-lb. bags, it represented a total potential of 700 million bags, something like 250,000 tons of kraft paper per year. In 1949 manufactured feed was 2 per cent in paper and 98 per cent in fabric.

Economy and protection were our major sales points. At that time, paper enjoyed a distinct price advantage over fabric. Paper also offered maximum protection against the transmission of poultry and cattle diseases. While we made progress, it was two new features which produced the rapid gains of the past two years. The first of these was the introduction of the 50-lb. multiwall bag to replace the traditional 100-lb. bag. This gave us a sales story which had a new and human appeal.

The whole tendency of today's living is toward making life easier. We use lighter packages to lift, do less physical work, etc. We sold the feed sales executives on the merchandising advantages of the easier-to-handle container; and working with and through this sales management, we helped to sell the feed dealer and the farmer.

That wasn't enough — we also had to sell the manufacturing executive of the feed manufacturer that this container would not increase his costs or impair his production efficiency.

With minor modifications made by our technical field force, or "field engineers," we were able to sell the manufacturing personnel of the feed mill on the new package; and, equally important, we sold them on St. Regis "know-how!"

At every stage of handling in the manufacturing plant it was noted that the 50-lb. multiwall bag produced an important effect — lack of afternoon fatigue. People just handled the new package better, easier, and happier than the 100-lb. bags. Ease of handling became a big sales factor.

We should have recognized the second point but did not immediately do so. The feed industry is active in sales, merchandising, marketing, advertising and brand name emphasis. The smooth, clean, attractive surface of the multiwall bag offers a perfect advertising surface. Fabric just doesn't lend itself to color and sparkle.

The colorful, attractive multiwall bag of today may be of either natural kraft or bleached white kraft. The best in art and design and printing service are offered our customers, and many of today's multiwall bags are printed with artistic designs and sales-appealing, colored drawings of poultry or cattle. In addition to this art, and printing service, we offer technical and engineering aid in bag filling, bag closing, and bag handling in the feed manufacturer's plant.

Today, the spread between fabric and paper costs has sharply narrowed, but paper's advantages — protection, ease of handling, and display value — continue to increase the use of paper. From less than 4 per cent five years ago, this 35 million tons of feed is more than 25 per cent in paper today.

There has been another *plus* dividend for St. Regis. Most of the young men who did missionary promotional work in the field a few years ago, are today district sales managers or better in one of our divisions.

Some other examples

Much of the strength and stability of St. Regis today has come from a program of diversification and specialization. We make a lot of paper, but we have tried never to make just paper.

In our Printing, Publication and Converting Paper Division, groundwood has been upgraded; and we have joined with others in the industry in lifting this one-time poor relation in paper to the position of a highly-respected citizen within its industry,

(Turn to Page 911)

Four basic attributes of selling*

J. S. CROCKETT
Director of Sales Training
Minnesota Mining & Mfg. Co.

After studying this article the reader will understand why the American Institute of Management recently named the M. M. & M. Co. "one of the five best managed companies on the North American continent."—Editor

THE JOB OF SELLING falls into four basic parts: attitude, knowledge, habits, and selling skills. The quality of these parts and the sum of their proficiency determine the degree of success any salesman will achieve, because the splendid "know-how" of the manufacturer and the tremendous competition factor of our system have reduced the margin of superiority between products to the point where the salesman's efforts are the determining factor in competing for the customer's dollars. His training, his knowledge, and his spirit of service determine whether the customer buys from Company A or Company B.

Importance of attitude

Attitude is an elusive thing to define, but not too difficult to measure. It is the way you feel about your job, about your company and about the products you sell. It's the way you express these feelings, in the way you look, the way you talk. Needless to say, without a feeling of pride and self-respect — for your company, your job and yourself — you won't break any selling records.

How can you tell if your attitude is what it should be? For one thing, you can see it reflected in the faces of the people you call on. If you have a high degree of self-respect, you will demonstrate a high degree of respect for your customers; and they will return that respect to you. Their response will tell you if your attitude is what it should be.

If, on this basis, you find that your attitude is not what it should be, can you do anything about it? You certainly can. You can ask yourself some questions: What do I want to get out of life? What's my goal? What can I, with my special talents and abilities, do to get there? Do I sincerely believe that my company — with any of the shortcomings it might have — is a good company to work for? Do I believe in myself, in what I'm doing? Am I having fun in my job? Do I really believe in what I want my customers to believe? If you ask yourselves these questions, you will have to find answers to them. And whatever those answers — if they are honest — they will help you put the right face on attitude.

It's conventional and it's easy to say, "You have to be enthusiastic." But what many of us forget to consider in telling you that enthusiasm is a must in a successful salesman's makeup is, that as individual personalities each of us has his own way of showing his enthusiasm. I think the sales manager who wrote to his salesman in 1917 really captured the true meaning of enthusiasm and how we as salesmen can put this powerful force to work for us — each in his own natural way:

"Enthusiasm: that's a wonderful word, Red. A wonder. Without enthusiasm, you can make no sales. The sleeping, the dying, and the dead don't deliver the signed order. You and I must be bubbling over with enthusiasm, must be enthusiastic for our product. Enthusiastic for our proposition — enthusiastic for our company — enthusiastic for our job — or we cannot expect our prospect to fall for us. If we are not, he simply will not be impressed.

"Yours and my enthusiasm must be sincere — genuine — to be infectious. It's only sincere, genuine enthusiasm that brings results. I may be enthusiastic in a loud pound-the-table way and still sincere. You may be just the contrary but still sincere. You'll get away with it just as well as I can. The main point is the sincerity.

"I once heard a successful salesman say that he deferred his call on an important prospect an hour or two because his "enthusiasm" pressure was low. He didn't take

*Presented under the title "Help Yourself" at a meeting of the Salesmen's Association of the American Chemical Industry, New York, Nov. 11, 1954.

any risk, he made one or two unimportant calls in the interim until he got his enthusiasm boiler working again and his pressure up. Then he made the "big" effort. It's worth thinking about, Red, remembering he was and is a successful salesman.

"By the way, did you ever see any kind of victory won — baseball, football, tennis, prizefight, or that best old game of all, a big order taken — that wasn't heavily charged with enthusiasm and its first cousin, optimism? To my way of thinking, if you want to lose a deal, simply appear before your prospect full of doubt, anxiety, fear or hopelessness. Contrast that with confidence, preparedness, fearlessness, and the enthusiasm thus developed."

A phrase I like is one used by a salesman I know. He says: "I always Think Lucky." I think he means that he just assumes he is going to be successful in whatever he is doing, that he is going to accomplish what he sets out to do.

That is attitude — and enthusiasm. But remember, there is no one way to be enthusiastic. It's different for each man; it's different with each personality. So be enthusiastic, but be yourself.

Knowledge — the more the better

The second part of our selling job is knowledge — as broad a knowledge as we can develop, and above all, product knowledge, and knowledge of our customer's business and his problems. I have talked to many technical people; I have asked them what they value most in a salesman. And invariably they tell me, "It's a pleasure to talk with a salesman who knows his product, its potential and its limitations — there is a feeling of accomplishment in talking with a man who knows what he is talking about."

Knowledge, as I have suggested, divides into two major areas. The first is, knowing everything you can possibly know about your product. Your company provides you with this information. It's up to you to study it, to absorb it, to ask questions, to keep your mind sharp and receptive.

The second is, knowing everything you can about your customer or your prospect's problems. Then, and only then, can you fit what you know into what he needs. In most cases, you can get this vital information by asking for it, honestly and frankly; by telling your customer why you want this information — to serve him better. Putting these two information banks together gives you the basis for offering better service, saving your time and the customer's time, target rather than buckshot selling.

All this comes back again to the question of self-development. A constant examination of your own attitude, your own knowledge, offers the basis for a healthy self-development program.

Every such program turns on the constantly asked question: "How am I doing?" If you want to reach your own maximum potential, you have to be thinking all the time, looking at your own performance, asking yourselves questions, evaluating the quality of your performance. Thinking is a constructive activity. Brooding and worrying is not. If you keep thinking constructively, you will improve.

But thinking has to follow a pattern. A technique we use to assist our salesmen in planning and executing their own self-development or self-training programs is to have the salesman fill out — periodically and regularly — an appraisal of his own job performance. His sales manager fills out a parallel appraisal at the same time. A comparison of these two estimates provides an excellent road map for future activity. It enables the sales manager to provide precise help; and it enables the salesman to help himself. Our salesmen are very enthusiastic about this program. It's simple — maybe that is why it works.

Let us say, for example, that you are evaluating yourself. You want an honest appraisal of your product knowledge. You might ask yourself such questions as: "Do I have a favorite product or products which I find easier to sell than others? If so, what are they? Am I missing an opportunity in not promoting other products in our line? Why am I not doing it?" Another question you might ask is: "When I encounter a situation where I feel my product knowledge is inadequate, what do I do to correct it?" The answers you spell out to such questions; the corresponding answers you get from your sales managers are already forming the foundation of a solid self-development program which will certainly raise your capacity. Experience has taught me that when we analyze a situation, a person, or any part of our job performance — and that means simply thinking about it constructively — we are taking a long stride toward successful action.

We had a dramatic example of this in a series of meetings we conducted with some of our salemen. Our meeting theme was a take-off on Ralph Edwards' popular TV show, "This Is Your Life." We called it "This Is Your Customer."

Well in advance of our meeting, each of our salesmen was asked to write up and give us a profile of one of his accounts — an account he had been trying to sell without success. We asked each man to sketch — in writing — something about the personality of each individual he was contacting at the prospective account, the nature of their business, the product and program he was proposing, the objections he was running into, and other pertinent facts about his relationship with this account.

This meeting turned out to be the most enthusiastic and successful sales meeting we ever had. It was successful even before it opened its doors. Why? Because in working out the profile, in writing down the information we asked for, many of our salesmen found the answers to the problems that had blocked a successful sale. Using the analysis each man worked out for himself, many of the salemen went out and closed important sales — even before they came to the meeting. We didn't have to tell them that this kind of thinking would do a job for them. They told us! They said it with orders.

Out of this meeting came a plan of action. Prospects were turned into customers simply because the saleman took an objective look at his own efforts, and at his customers.

So you have to be two people all the time. One of you is actually doing the job. The other — call it your shadow, your conscience, anything you want — is always watching you, questioning you, measuring and evaluating your efforts. And this kind of thinking can lead to personal progress in many worth-while directions that will help you build your own potential as a salesman and as a man. Just recently, I talked to one of our salesmen who had just gone through one of his periodic self-appraisals. He called a conference with his sales manager. As a result, among other things, he subscribed to a number of trade journals in the industrial field he was serving. He joined a local trade organization. He not only developed a broader knowledge; he was alerted to new product applications for our products.

Market Development - - - basic selling attributes

He took a big step on the way to becoming a creative salesman.

Establish good work habits

Work habits are the next major part of our jobs. Sloppy work habits, poor planning and poor self-administration makes for rough going. Good work habits are not easily come by, but once they are developed, they make the job a lot easier.

I know a salesman who does a beautiful job of managing his time and his territory. One of the good habits he practices is what he calls a pre- and post-call check on himself. He has organized a series of questions which he asks himself before and after every call — such questions as: "What is my interview objective? Was I able to find several definite needs on which to base my interview? Did I use my sales tools and samples effectively?" If his call has been successful, he knows why, and he uses what he has learned about himself wisely on other calls. If his call hasn't been productive of an order, he has a method for finding out why, so that he can improve his performance on future calls.

He told me of other successful habits he has developed: "I plan each week's work in advance, usually on Wednesday night of the week preceding; I plan this weekly schedule in detail, including the names of the accounts I am going to contact. I use my customer call cards to get this information, my correspondence file, and my prospect list. Then, I recap this plan during the week-end to allow for last minute changes, and I check my selling tools, samples, literature and equipment to make sure I have everything I need to make all the calls I have scheduled for the week. After I am into my week, as a double check, I plan each day in detail on the previous night, writing down the objectives I want to achieve on each call, the material needed to make the calls, and any other pertinent notes I feel will be helpful in making my calls productive."

This saleman seems to have a realistic approach to the planning phase of his job. His plan is simple, his objective is to get in front of as much dollar potential as possible each selling day. With his plan he knows how to buy the greatest number of opportunities with the smallest expenditure of time. This salesman told me that the big thing his plan did for him was to give him confidence by eliminating nervousness and strain, by knowing in advance what he was going to do and how he was going to do it. He said it makes his life easier.

Surveys show that, on an average, you will spend approximately 120 minutes a day face-to-face with your customers in actual selling time. These 120 golden minutes represent the real productive time of your job. Again, an honest evaluation on your part as to the effectiveness of your present work plan will enable you to set up your own self-improvement program for this phase of your job.

Selling skills — the sum total

And the final part of a salesman's job — the part that gives all of us the greatest satisfaction — is: selling skills.

Webster defines skill as the ability to use one's knowledge effectively; an art; a science.

Selling skills to the salesman mean the application of the sum total of all parts of his job. It's where your special personality comes into play. It's what you do and say when you are face-to-face with your prospects and customers.

There are thousands of ways in which sales are lost, but unfortunately there are just a few limited ways in which they are won. Words are the tools with which salemen make sales. The use of words by salesmen to me has always been an intriguing subject. Digging into it reveals some interesting facts. For example, we found the average salesman uses between 15,000 and 20,000 words a day talking about his company's products or services. When we stop to consider that sales are won or lost on a single word or sentence it leaves no question as to the importance of the selling words we use.

From where I sit, you have three types of people to sell: purchasing, technical, and production. Let us analyze these three vital selling areas.

Let us determine the major responsibility each of these three groups has to their management; and let us make these repsonsibilities serve as a guide for us in setting up a program of self-improvement or self-training for increasing our effectiveness in our contacts with these people.

First: purchasing has to substantiate the economics of any purchase. The technical people have the responsibility of verifying the correctness of a purchase they approve, and production must be able to prove the utility of the products they approve for purchase.

Well then, let us give them what they want. Let us help them discharge their responsibilities. They will help you if you do.

Purchasing people have told me that they want a salesman's approach to indicate that he has recognized a need and that he has the product to fill the need. They tell me they want you to handle the orders they give you promptly. They want you to handle any correspondence they direct for your attention promptly. They want you to give top priority to any or all complaints. They want you to recognize and respect their position and knowledge.

Technical people like to do business with the salesman who is smart enough to let the customer assume the credit and responsibility for the salesman's ideas. As one technical director put it, "The smart salesman plants the seed, but lets his customer harvest the results."

Production people want to be shown that a product will work for them, that it fits into their operation, that it will be easily handled, that it will contribute something to their efforts. Show them, demonstrate and, better yet, give them the opportunity to convince themselves.

Production people have told me: "We support the salesman who recognizes our importance and the responsibilities we have to top management. We appreciate the salesman who, for example, asks us how we want shipments and samples routed, what our packaging requirements are, if he can be of assistance in running a test, what the best time is for us to fit his test into our schedule, if we need any literature on his product. The salesman who checks our equipment to see if it's adequate to run his test; the salesman who observes his shipments and advises his plant if improvements can be made."

Again, an honest evaluation of your performance at this selling level will provide you a realistic outline of things you can do to increase your selling effectiveness and productivity in your contacts with production personnel.

There have been literally thousands of words written and spoken about the philosophy of selling, but if we boil them all down, we come up with a simple fact; and that is that a sales interview to be mutually profitable to both buyer and seller must be the

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What is the effect of company mergers on the distribution of paper and paper products?

C. LESTER HORN
Business Consultant

▶ The net effect of mergers upon distribution is beneficial to the industry, to the country's economy, and to the industry's customers—the public.

AN INTELLIGENT APPRAISAL of the effect of mergers on the distribution of the products of any industry, whether paper, wood, steel or any other item, should appropriately start with an orientation of our thoughts regarding reasons or conditions which motivate such mergers.

These reasons and conditions are manifold. Therefore, the effects of one specific merger upon distribution of the products of the companies involved may be entirely different from those of other mergers in the same industry.

It should be remembered that one of the main purposes for existence of a business enterprise has always been to make profits. However, enlightened business management, whether of large or small enterprises, has long since adopted a parallel and equally important precept: "He profits most who serves best." Therefore, the guiding motives which prompt most mergers lie in anticipated increased facilities to provide better, broader, and more economic services to customers of the resulting expanded enterprise.

Classification of motives for mergers

One logical basis for analysis of these motives is to consider them from these three angles: (A) one company, large or small, acquiring another; (B) two or more companies merging into one company, as distinguished from one acquiring another; (C) a merger to permit an owner's retirement or to solve some legal, financial, estate or other problem unrelated to production or distribution.

In the case of one company acquiring another, the most common motivating reasons (through not an all inclusive list) may be any or several of the following:

1. expand operations backward into sources of basic materials or forward into making end-use of its products (usually referred to as a perpendicular merger);

2. expand operations either geographically or through more intensive coverage of the area served without material change of products (usually called a horizontal merger);

3. provide diversification by entering new and different industries (sometimes called a conglomerate merger);

4. secure either new or additional production facilities of a kind or at a point more advantageous or supplementing those already owned;

5. broaden its line of products within its general field of operation;

6. fill in gaps in seasonal product lines;

7. expand sales volume to secure greater efficiency in either or both production or distribution;

8. secure desired organization or personnel;

9. secure benefits of greater financial or trade stature, acceptance or prestige which may (a) benefit owners or security holders in the form of wider or better marketability, (b) open new sources of supply or distribution channels, or (c) increase credit standing in banking or capital markets.

In the case of "two or more companies merging into one company," as distinguished (possibly a fine line of distinction) from one company acquiring another — or, say, an "industrial marriage" instead of a "family adoption" — some of the motives or reasons outlined above (especially 2, 7 and 9) might apply; however, the following motives are, in some cases, the more direct:

1. eliminating duplicate operating costs, plant facilities, branches or other expenses;

2. providing a stronger organization through combination of skills, experience and judgment of managing or other personnel, and enabling the various executives to concentrate attention on most effective activities through relief from diversifying detail — and greater possibilities of growth;

3. providing for more definite management continuity or avoidance of possible necessity of liquidation

in event of death or disability of limited executive, production, or sales talent;

4. making possible more effective advertising and sales effort through larger budget justified by increased volume.

Mergers of the (C) classification may be considered as having motives unrelated to those of the (A) classification. In such case, of course, the ruling motive at one end may be to secure the benefits to be derived from one or more of the foregoing identifications. At the other end, however, the motivating influences may be:

1. an owner's desire to retire because of age, health, other business activities or purely personal reasons;
2. necessity of liquidation or diversification of an estate;
3. insufficient capital for obviously necessary or desirable expansion;
4. conflict or friction in management or ownership;
5. a business inherited where the owner does not wish to assume or continue the responsibility of management;
6. changing conditions indicate necessity for change of location, products, use of facilities or resources;
7. protection of a future estate;
8. inheritance tax problems or other tax advantages.

From the foregoing it is obvious that the effect of any specific merger upon distribution of the products of the companies involved will vary in extent and nature with the reasons or conditions which motivated the merger. Furthermore, it would be hard to imagine any merger which would have absolutely no effect upon distribution.

It will be noted that no mention is made of "elimination of competition" as a motive. This is no oversight. Though it be a fact that in earlier decades of our industrial history some corporate mergers considered the elimination of competition as an important, but not necessarily major, objective, it can be stated categorically that in recent years few mergers have been consummated in the U.S. with reduction or elimination of competition as an objective. In fact, a substantial percentage of mergers create more active and keener competition, or contain elements which most certainly will produce those results. With equal emphasis it may be stated that in most cases all persons concerned — owners, personnel and customers — benefit as the result of an intelligently conceived and consummated merger.

With few, if any, exceptions the foregoing generalizations apply to all recent industrial corporate mergers in the United States, regardless of industry, though it is patent that some have seemed to be far more logical, and to have had greater potentials for producing beneficial results than others.

With the foregoing fundamentals in mind, let us consider their specific application to the paper and allied industries.

General effect on the paper industry

It must be acknowledged that mergers have had an important part in the great climb of the paper industry from its "prince or pauper" status of less than three decades ago to its present strong stature as "America's Fifth Industry." Substantially every company of major size and relative importance in the industry has attained its growth and sales volume, at least in part, *via* the merger route; likewise, many of the medium-size and smaller companies have materially expanded in stature and scope by the same route.

Notwithstanding the many mergers which have been consummated, the paper industry is far less concentrated than most other important industries, such as steel, motors, chemicals, foods, etc. The 1954 edition of Lockwood's Directory shows 485 concerns with a total of 772 paper mills located in 39 of the 48 states. The allied industries, which include a broad list of converters of paper and paperboard into cartons, containers, tissue and waxed paper products, bags, envelopes, etc. are even less concentrated.

This lack of concentration is emphasized by the fact that the total sales volume reported by the largest company in the industry for 1953 was less than 8.2 per cent of the total for the industry, and the combined total sales reported by the ten largest companies in the industry, as tabulated in the "1954 Statistical Comparison of Companies in the Paper and Allied Industries," was less than 26.4 per cent of the total sales of the industry, as published by the Federal Trade Commission.

Generalized, the broad effect of mergers on product distribution has been the part they have played in helping to expand annual paper production and consumption from 9.2 to 26.5 millions of tons (an increase of 187 per cent) in the past two decades. Just what share of the credit for this growth can be attributed to mergers is difficult to ascertain. There is, however, no doubt that their contribution has been significant because of the part mergers have had in (a) providing facilities and capital structures of size and scope to create and handle the greatly expanded volume of production and distribution, (b) making possible the vast researches which have produced the new and the better products, and (c) producing greater efficiency in production, promotion, and distribution of both the old and new products.

Let us, then, consider the effects on distribution from the various angles of the motives which are back of the various types of mergers.

Effects of a perpendicular merger

Let us assume that the parent company starts out as a non-integrated paper mill. Its acquisition, in a backward direction, of a pulp mill, and then still further backward into the woodlands, would have less direct effect upon distribution than a forward acquisition — it would be felt in distribution mainly in the greater ability of the expanded company to (a) more accurately determine the character and quality of its production, which would be reflected in the demand, (b) assure continuity of service to customers in periods of pulp shortages or labor disturbances in outside sources of pulp supply, and (c) realize greater range in establishing price structure for its products during periods of keen competitive conditions in either seller or buyer markets.

The parent company's move in the forward direction by acquiring a converting business may have diverse effects on its distribution. These might be any one or all of the following: (a) reduction of combined manufacturing costs, transportation expenses and other unit-costs which must be reflected in end-prices, (b) feasibility of more extensive and effective public relations and advertising coverage and business creating activities, (c) provision for more exhaustive research and development of new or improved products for industrial or commercial customers or distributors, (d) better control of progress of materials from

Market Development - - - the effect of mergers

basic sources through various processes of manufacture to end-use distribution, (e) assurance to customers of more definite continuity of supply and character and quality of products, (f) assurance to the expanded company of more definite continuity of end-distribution of its basic products, and (g) better control of production costs through avoidance of squeezes during periods of economic dislocations; therefore, elimination of necessity for sudden and drastic fluctuations of distribution end-prices and the uncertainty regarding ability to meet distribution contract obligations without loss.

Other than the effects mentioned in the foregoing general abstract are those which may be peculiar to the special character of products. For instance, in the field of fine papers distributed largely through franchised jobbers or distributors or dealers, some new alignments of dealerships may (though not necessarily) occur. In the fields of paperboard and coarse papers, shifting of some converter accounts may result for one of several reasons, such as (a) the merging converting plants requiring all or most of the available supply of board or paper, (b) desire on part of former customers of either the parent company or of the merged units for more than one source of supply, or (c) shifting of character of products of the merged companies.

In other cases, the acquisition of a company may result in changing the character of its products to conform to those of its new parent company, which may result in shifting of the former distribution of the acquired company to other producers of such items. For instance, the acquisition of a coarse paper or board mill by a company in the building materials field may result in a change of the production of the acquired mill to building paper or board.

Even though such shifting of character or end-use of the products of a mill involved in a merger may result in realignment of distribution channels, it should not be assumed that this will work hardship on or cause more than temporary inconvenience to customers dependent on the mill's former distribution channels. Likewise, there is no justification for arbitrary presumption that a merger will have an adverse effect upon the industry or work to the disadvantage of either employees or the public. In fact, the benefits may well outweigh any dislocations. And, it must be borne in mind that economic demand and conditions are constantly changing; in many cases those changes are the result of (a) exhaustion of sources of formerly plentiful near-by supply of raw materials, (b) increased production costs due to changed local conditions, or (c) decline of demand for the products of a specific mill or factory — conditions which can be corrected only by "adoption" or "industrial marriage" with another enterprise which has the necessary resources, sources of supply, personnel, organization, or other elements to permit the operation of the plant on products which can be distributed beneficially.

Effects of the horizontal merger

Again, to use a specific illustration, assuming that the parent company or merging companies are converters in the container, carton or packaging branches of the industry, the effects on their distribution would, in most cases, lie largely in one or more of these directions: (a) extension of their geographic area of service, (b) broadening of the scope of their products or activities, (c) increasing efficiency of production, (d) reduction of unit costs of production, distribution, sales and administration, (e) feasibility of more effective and extensive research and similar services for customers, (f) provision for greater resources for sales promotion, advertising, and similar activities, (g) possibility of faster and better services to customers, and (h) possibility of one unit or division of the merged companies servicing industrial customers which have plants located in areas served by other of the merging units (this, of course, means a potential shifting of customers — increased competition).

Effects of the conglomerate merger

The merger of a company in the paper or an allied industry into a parent company of the conglomerate variety would find that the most definite effects upon distribution of the paper products lie within the methods of promotion and distribution used by the parent company in respect of its products of other types, which might or might not be entirely different from those used by the absorbed company before the merger.

Such a merger might result in switching a major or substantial percentage of sales from jobbers or manufacturers' agency accounts to direct selling by the salesmen of the parent company's sales organization, thereby broadening the line of products each salesman of the parent company can offer to customers. In any event, there would usually result a shifting of sales methods and readjustment of sales organization to eliminate duplicate sales efforts and expenses. Advertising and sales promotion of the parent company might be broadened to include its new paper product line along with products of its other divisions which are distributed to the same users or retail outlets.

Under some conditions, it would be feasible to combine shipments of its paper products with those other divisions, thereby extending the economies further back along the production-distribution line.

All of the economies and increased efficiency suggested by these moves, supplemented by the (a) potential increases in sales volume which can result from more intensive sales effort and promotion, or possibly broader area of distribution, and (b) reduction of average unit costs for executive and other charges, may well be reflected in lower prices to customers at the end of the distribution line and better service to retail distributors.

It is logical to expect that the net long range result of such a merger would be broader and more intensive distribution of the newly acquired paper products through opening of new outlets alrealy being serviced by the conglomerate parent.

Effects of a merger based on other specific motives

A merger made for the purpose of securing for the parent company new or additional production facilities, of a kind or at a point more advantageous than those already being used, would usually be for the purpose of increasing efficiency of production or distribution, or to secure production facilities for business which the parent company already has or is in position to secure above and beyond present capacity. Since it may be reasonably anticipated that customers already being serviced by the merging unit (in most cases) can be held after the merger, an acquisition of this kind should normally result in increasing production demand for the merging unit by addition of busi-

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Market Development - - - talents, risks and challenge

What talents, what economic risks, and what over-all challenge in market development?

A. W. J. DYCK

IN THIS AGE OF MANUFACTURING know-how and keen competition which have narrowed the margin of quality between competing products so that the salesman's skills are often decisive in retaining or winning a customer, what are the special talents that a manufacturing company desires in its sales and market development representatives?

The emphasis today, everywhere, is on market development, and it is gratifying to note what degree of maturity has been reached in the over-all thinking on this subject in the pulp and paper industry. The industry no longer subscribes to an attitude that a market can be developed for any item provided enough advertising pressure can be marshalled behind this product, nor does it take anyone too seriously who believes that a newly developed product will automatically find its market on the strength of its superior quality. The industry is becoming more and more convinced that research and sales must go hand in hand.

We know today that a full cooperative effort is needed to incorporate in the product the best known qualities for a specified end-use, to manufacture the product as economically as possible, and to promote it through advertising, potential-customer information, and technical service.

A further consensus is that, with the successful development of a new product through the laboratory and experimental stage, the real problem has only begun. A thumb-rule estimate of expenditures involved in the various stages of product development to marketing, roughly calls for ten times the research expenditure to put the new product through the pilot plant stage, and again ten times the pilot plant stage expenditure to manufacture the product in a commercial-scale plant. Following this, there remains the problem of developing a market for the new product, which cost-wise may be as high as to match or even double the expenses involved in erecting additionally required manufacturing facilities.

How are some sales activities organized?

Taking as an example a progressive paper manufacturing concern whose efforts in market development are most carefully planned, both from the long and the short range points of view, a company's general sales division may be divided into (A) the lines division, which is engaged in routine selling of the company's established lines, and (B) the staff division, which performs such functions as to plan and set up a sales program, decide what products to develop and at what price they are to be sold, how the product is to be presented to the customer, and in general provide the lines division with all product and marketing information. The staff division is further subdivided into five groups: (1) merchandising, (2) product development, (3) market research, (4) sales training, and (5) advertising and promotion.

The five groups comprising the staff division work as a unit in planning all activities pertaining to the selling of the company's products. Their aim is to present the lines division with a complete package: the product itself, product information, potential market, merchandising and selling techniques, etc.

The skills and talents

Now that we have a picture of the scope covered by marketing problems and of the activities and organization needed to cope with these problems, what special talents must the individual have to fit into this system of activities?

The ideally qualified man, of course, is he who combines the talents or accomplishments of personality, integrity, product know-how (both technical and economical), perseverance, and general knowledge. Since all these accomplishments are seldom found in any single individual, it is necessary to analyze them separately and, if possible, evaluate them in their order of importance to the sales effort.

There is no substitute for personality. It involves inherent enthusiasm, the ability to say the right words the right way, an appearance of self-confidence, etc. — all qualities of high sales potential.

Market Development - - - talents, risks and challenge

However, product know-how based on sound technical knowledge is steadily gaining ground as an equally desirable attribute in effective selling, in view of our technological progress and the specialized applications and properties of the products put out by modern industry. So much so, that the question frequently debated is, "If we cannot combine the accomplishments of personality and technical know-how in a single individual, or if we have to choose between men of exceptional personality and those of good technical background, which of the two should be added to the sales staff?"

As may be expected, there is little agreement in the answers to this question. Some sales managers put the emphasis on personality, while others stress product know-how. Perhaps one of the most discerning answers was that of Carl A. Schiebler, general sales manager of Nekoosa Edwards Paper Co., when confronted with this question.

"It depends on the product," Mr. Schiebler said. "If the product belongs to a well established line, we prefer a man with personality. If, on the other hand, it is a new product, we want a man with technical background, who can explain the product's properties to the potential customer and suggest on-the-spot applications in accordance with the customer's requirements."

Mr. Schiebler referred specifically to a paper line developed by the company a few years ago, which presented many unusual and technical problems with which an ordinary salesman was unable to cope. After several not-too-successful trials, the company put a technically trained man on the job, who soon won the complete confidence of both the customer and manufacturer—the customer's through his familiarity with the product's properties and applications, and the manufacturer's through his ability to spot product weaknesses and suggest improvements.

The importance of product know-how and a hand-in-hand liaison between research and sales are given full marks by the Minnesota Mining & Mfg. Co., which recently won the distinction of having been named "one of the five best managed companies on the North American continent" by the American Institute of Management, with "research easily being the best in the country, and sales not far behind." The realization that full knowledge of his product is an attribute the customer values most in a salesman provides the basis for the superb training given to M. M. & M.'s salesmen.

Another important quality is the ability to play an efficient part as a member of a team. There is universal agreement on this point. Teamwork begins in the laboratory, where the potentialities of the newly conceived product are discussed with the production and sales divisions. There must be complete identity of points of view between the staff and lines divisions of the sales department, and, of course, there must be perfect teamwork among the men in the field.

This brings us to another quality — integrity. Those engaged in selling must be mentally and morally fit for the task and show the integrity of character that evokes confidence and respect. The salesman must learn primarily how to handle himself. The handling of his customers, no matter how tempting, is a secondary consideration.

What risks are involved?

The possibility of having misjudged the size of a potential market and the needs of the customer has been, and still is, a risk that confronts management after having made the decision to go ahead with a new project.

This risk, however, is rapidly being reduced to a minimum with companies that have strong market research facilities or else observe the necessary caution when putting a new product on the market. It is, for instance, inconceivable that Scott Paper Company should make a completely wrong decision about putting a new paper napkin on the market after having made a consumer survey which involved testing the reaction of some 6,000 housewives to the new item in the New England states. Nor does it involve too great a risk if the company's practice is to delay the all-out production and promotion programs until consumer reaction has been tested for a year or two, without interfering with the production of the company's established lines. A year's observation of the performance of the new product in a limited market enables the company to decide, with reasonable accuracy, whether it will be worth-while to launch an extensive promotion effort.

Underestimating the cost of the promotion program constitutes a substantial risk. A company may discover that, by the time it is ready to embark on the product promotion program, it has made no provisions for the costs involved, or it may run out of funds at the point when the promotion program is only partly underway. Reports show that it is not unusual for the cost of a promotion and advertising program to be equivalent to the total income from a year's product output.

A further risk lies in the effect marketing a new product has on the popularity or saleability of an established line. Will the appearance of the new product on the market reduce the demand for other profitable lines? Will the blocking off of certain manufacturing facilities needed for the production of a new product interfere with or reduce the output of established lines? These are questions that pose serious risks for the manufacturer.

Inadequate testing of the new product's properties entails a risk. Should the new product not measure up to expectation or to manufacturer's claims, the customer is likely to lose faith in the company and this, in turn, is reflected in diminishing sales of the company's products.

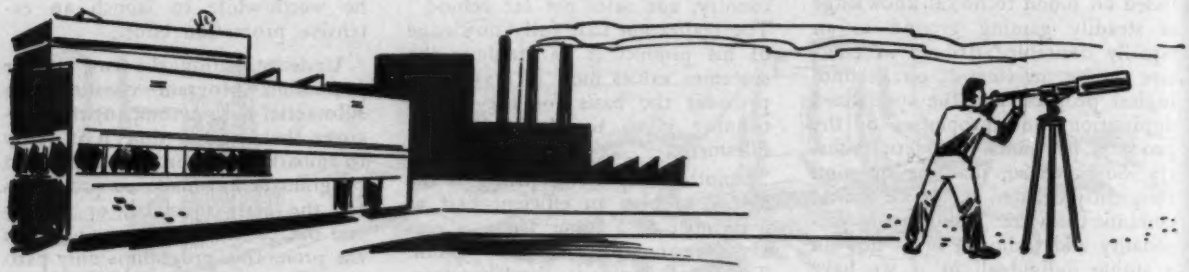
And finally, there are always the competitor's unpredictable endeavors that may lead to the development of similar or even superior products and thereby wreck company plans or take an appreciable slice of the estimated market.

What is the challenge?

The challenge may mean different things to different companies. Company A may wish to dominate the national market volume-wise, company B may want to be known quality-wise, and company C may wish to see its products distributed on a global scale.

But the challenge that is basic with all companies is posed in the question, "Are we technologically ahead of our competition?" A company's rapid growth is much more due to its rate of development of new products than its expansion

(Turn to Page 911)



Factors affecting the long-range demand, supply and price*

BY 1975, three forest products — lumber, pulp, and plywood — are expected to take 90 per cent of total wood requirements, including all sizes and grades of material, and 95 per cent of sawlog-size wood.

Future forest-products market demand will depend on the level of activity in these major markets, on the available supply of forest products and the cost of making them, on the relationship between the price of each forest product and the prices of competing materials, and on changes in technology and consumer acceptance.

Of the estimated 10 billion acres of forestland in the world, about 23 per cent is in the USSR, 23 per cent in Africa, 12 per cent in Asia, 19 per cent in South America, 19 per cent in North and Central America, and only about 3 per cent in Europe. The world supply of softwood lumber is about one-third of total supply in the productive forest areas, the only substantial softwood regions being in the United States, Canada, and the USSR.

Although North and Central America and Europe together contain only about 30 per cent of the world's forest land outside the USSR, they accounted in 1951 for almost 80 per cent of the world production of roundwood (again excluding the USSR). This indicates large quantities of the world supply are "inaccessible" — that is even at the present high level of world prices for lumber and sawlogs, it has not been economically feasible for those countries with large wood supplies to produce much for the world market. Potential supplies in South America and Africa probably will not be harvested and transported to the United States in large quantity unless the relative price of lumber increases more rapidly than is expected in the coming 20 years.

Long-range outlook for shipping materials

Shipping containers, as distinguished from packing materials such as boxboard and glass, can be divided generally into two main groups:

1. The box-and-crate-type, used primarily for shipping packaged goods and finished and semi-finished products, and
2. The bag-and-drum-type, used primarily for materials shipped in liquid or bulk form.

To determine what change has occurred in demand for shipping containers, the various materials used in each group were converted to the number of equivalent containers of a standard size (1½ x 1 x 1 ft.) producible annually. Allowing for the average weight of each type of material, as well as for such parts as flaps on fiberboard containers, the number of equivalent containers was calculated for each year from 1940 through 1952. Production of both container types fluctuates in the same proportion as changes in industrial activity, as measured by the Federal Reserve Board Index of Industrial Production. Total demand for shipping containers of both types is expected to increase by 85 per cent between 1952 and 1975. Competitive shifts of various materials within each shipping container type from 1940 through 1952, and the expected further shifts from 1952 to 1975, are shown in Table II.

In general, box-and-crate-type containers take two-thirds of the total shipping container market. Within this group, corrugated containers have increased their share from 67 per cent in 1940 to nearly 80 per cent in 1952, and they are expected to be 85 per cent of the total by 1975. The rise in corrugated containers, due primarily to their light weight and relative low cost, has been chiefly at the expense of wooden boxes.

Similarly, in bag-and-drum-type containers, multiwall paper sacks have increased their share from 25 per cent in 1940 to nearly 60 per cent in 1952, largely at the expense of cotton sacks. The share of multiwall sacks is expected to increase to about 72 per cent of the bag-and-drum total by 1975. Fiber drums have also taken an increasing share of this market in recent years, and they are expected to increase further. Steel drums and pails have accounted for a relatively stable

*From "America's Demand for Wood," a report prepared by the Stanford Research Institute for Weyerhaeuser Timber Co.

share of the total, while tight cooperage has lost most of its markets except for whiskey storage.

Pulpwood, pulp, paper, and paperboard:

In pulpwood, pulp, paper, and paperboard production, supply factors indicate that the upward trend in production can be sustained during the next 20 years with costs maintaining their relation to competing materials about as they are now.

Historically, the expansion of the pulp industry has been due to its ability to develop additional sources of low-cost pulping materials through modification of its processes. Significant expansion of output during the next 20 years is expected in all the major grades of pulp except soda and sulfite pulp.

Utilization factors indicating expansion can occur without prices rising at a rate greater than prices of competing materials include:

1. The nature of the pulping process, which permits the economical use of small-size timber and forest residuals.
2. The development of more economical barkers and chippers, which can increase the supply of sawmill residuals for pulping.
3. The development of, and expected improvement in, semi-chemical pulping processes, which appear to be particularly well-suited to hardwood pulping.
4. Developments in sulfate pulping which have made it a versatile process capable of using practically all species of softwoods and hardwoods for all grades of pulp.
5. Adaptation of groundwood pulping to a wider range of species, including some hardwoods as well as southern pine and Douglas fir.

Insulating board and hardboard:

It is expected that prices of insulating board and hardboard during the period covered by this study will tend to drop in relation to the prices of competing materials.

Increased interest in producing these products is evidenced by the entry of two western hardboard plants in 1953 and the expectation that six more will begin production in 1954. The recent development of these products has been largely based on utilization of mill residuals, defective timber, and species for which other uses did not exist.

It is entirely possible the heavy swing toward building board production will provide new capacity faster than the expected market growth. A major price drop may result. If this occurs, building board prices will then be very favorable in relation to those of competing materials.

Southern hardboard production must meet the competitive wood costs of the pulp industry. Under these conditions, there is little eagerness to enter the hardboard field in that region.

Paper and paperboard

Paper and paperboard consumption estimates are shown in the table below, built up from estimates of consumption of individual types of each:

	Millions of Tons				
Product	1952	1960	1965	1970	1975
Total Paper	16.9	20.8	23.3	25.8	28.0
Total Paperboard	12.1	16.6	19.4	22.1	24.9
Total Paper and Paperboard	29.0	37.4	42.7	47.9	52.9

Paper consumption, as measured by new supply (production plus imports, less exports), increased about 93 per cent between 1929 and 1953, rising from 9.1 to 17.6 million tons. Consumption of all papers by 1975 is estimated at about 28 million tons, based on correlation with population, real disposable income, and trend; this checks reassuringly with the total estimates for each of the paper types.

Consumption of all grades of paperboard, as measured by changes in new supply, has risen rapidly in the past quarter-century from about 4.3 million tons in 1929 to about 13.8 million tons in 1953. A continued increase is expected, but at a lesser rate. It is unlikely paperboard can find new uses as potentially large as shipping containers and packaging materials. A slower rate of growth, therefore, is reflected in an estimated future consumption of 24.9 million tons of paperboard in 1975. This estimate is based on a separate correlation of total paperboard consumption with population, real disposable income, and trend. The sum of the estimates for individual types of paperboard also provides the same estimate of total paperboard consumption by 1975.

To arrive at an estimate of production requirements in the United States in each of the future years, it is necessary to make allowances for net imports of paper and paperboard. In 1952, net imports totalled 4.6 million tons, with newsprint imports of 5 million tons partially offset by net exports of other grades. Heavy imports of newsprint are expected to continue; this country will remain a net importer of paper and paperboard. Net imports are esti-

Table I

	Domestic Production of Paper and Paperboard (Millions of Tons)				
Grade	1951	1960	1965	1970	1975
Total Paper	10.9	13.6	15.4	17.1	19.0
Fine	1.3	1.6	1.8	2.0	2.3
Newsprint	1.1	1.3	1.5	1.6	1.7
Book and other printing	3.4	4.2	4.8	5.4	6.0
Coarse	3.2	3.8	4.2	4.6	5.0
Sanitary, tissue and other	1.9	2.7	3.1	3.5	4.0
Total Paperboard	10.9	14.5	16.8	19.0	21.3
Container board	5.8	7.4	8.5	9.6	10.7
Boxboard and other	5.1	7.1	8.3	9.4	10.6
Building Paper and Paperboard	2.6	3.9	4.7	5.5	6.3
Building paper	1.3	1.8	2.1	2.4	2.7
Building board	1.3	2.1	2.6	3.1	3.6
Totals	24.4	32.0	36.9	41.6	46.6

mated to reach about 6.3 million tons by 1975.

Total domestic production of paper and paperboard is expected almost to double, from 24.4 million tons in 1952 to 46.6 million tons by 1975. A summary of this production, by major paper and paperboard categories, is shown in Table I.

Pulp uses other than paper and paperboard

Of the 800,000 tons of wood pulp used in products other than paper and paperboard in 1952, the most important consuming industry was rayon and acetate, which took 61 per cent. The remaining 39 per cent was used for cellophane, lacquers, photographic film, plastics, and explosives.

Most important growth area in the rayon and acetate industry has been in high-tenacity filament yarn. This growth has been greatly due to the tire cord and fabric market. From less than 1 per cent of this market in 1937, high-tenacity rayon rose to 64 per cent by 1950, and two years later it had taken about 77 per cent.

Textile consumption of rayon and acetate declined in the latter part of 1953, reflecting not only growing competition from other man-made fibers, but also from cotton, which is gaining an increasing share of the apparel market as a result of new finishes and dyes. It is expected by 1975 rayon and acetate will be about 23 per cent of mill consumption of fibers, compared with 18.9 per cent in 1952. This indicates a declining rate of growth for rayon and acetate in the textile industry. Past and expected shifts in textile markets are shown in the accompanying table.

Wood pulp consumption in other products has increased from about 70,000 tons in 1939 to about 308,000 tons in 1952. It is estimated total pulp consumption in these other uses will increase to about 600,000 tons by 1975.

Total non-paper uses of wood pulp are expected to increase from 800,000 tons in 1952 to about 1,800,000 by 1975.

Table II

Total United States Consumption of Shipping Containers, by Type

(Millions of Equivalent Containers 1½ X 1 X 1 Feet)

Actual, 1940-52; Projected, 1960-75

	Box and Crate Type					Bag and Drum Type								
Year	Corrugated	Solid Fibre	Wood	Plywood & Veneer	Total Box & Crate Type	Multi-Wall Sacks	Cotton Sacks	Burlap Bags	Steel Drums and Pails	Slack Co-operage	Tight Co-operage	Fibre Drums	Total Bag & Drum	Grand Total
1940	3,749	260	1,227	323	5,559	700	900	700	100	200	100	—	2,700	8,300
1941	5,288	323	1,571	332	7,515	1,000	1,000	700	200	200	100	—	3,100	10,600
1942	4,241	400	2,526	361	7,528	900	1,300	300	200	200	100	—	3,000	10,500
1943	4,784	469	3,382	352	8,987	1,100	1,400	400	300	100	100	—	3,400	12,400
1944	4,682	529	3,286	335	8,832	1,400	1,100	600	200	100	100	—	3,600	12,400
1945	4,811	485	3,000	309	8,606	1,500	1,000	900	200	100	100	—	3,800	12,400
1946	6,048	255	1,600	411	8,314	2,000	800	1,000	200	100	100	—	4,200	12,500
1947	6,295	257	1,440	308	8,299	2,400	800	900	200	100	100	—	4,500	12,800
1948	6,497	253	1,286	316	8,351	2,000	700	900	200	200	—	—	4,100	12,400
1949	6,435	215	1,086	333	8,068	1,800	700	800	200	100	—	—	3,700	11,800
1950	8,156	257	1,163	428	10,004	2,700	600	800	300	100	—	100	4,600	14,600
1951	7,934	317	1,349	503	10,103	3,000	600	600	300	100	100	100	4,700	14,800
1952	7,815	247	1,226	507	9,795	2,700	600	900	300	100	—	100	4,700	14,500
1960	10,037	246	1,365	652	12,300	3,800	800	1,000	300	100	—	200	6,000	18,300
1965	11,675	240	1,438	747	14,100	4,500	500	1,000	400	100	—	300	6,800	20,900
1970	13,524	225	1,497	853	16,100	5,400	500	1,000	400	100	—	400	7,800	23,900
1975	15,300	216	1,530	954	18,000	6,300	400	1,000	400	100	100	500	8,700	26,700

Sources: Actual derived from U. S. Department of Commerce data by Stanford Research Institute. Projections by Stanford Research Institute.

Note: Detail may not add to total, due to rounding.

Talents, Risks, etc.

(continued from page 907)

of sales in established lines. To keep abreast of its competitor, a company therefore is continuously procuring the necessary technical talent, is establishing more intimate liaison between research and sales, and is building up a competent organization to plan the development of new products and to keep informed of what the competitors are doing.

Then there is the challenge of extending the use of paper to new fields, to products and applications where paper is not being used now. This is an exceedingly fertile field, and, judging by the rate of progress made in the last decade, there seems to be no limit in sight.

Finally, every mill is constantly confronted with the challenge of how to put better and cheaper paper on the market.

Selling Attributes

(continued from page 902)

result of the salesman asking himself, "How can my product help my customer sell more or save more."

Yes, and again this is fundamental. A salesman should never forget that his customer is in business for only one reason: to make a profit and that there are only two ways in which his customer can increase his profit. One, by selling more and, two, by saving more in the purchase of those products which are a part of the customer's maintenance or production.

Then there is still a fifth part that goes into a salesman's job:

"Who Am I?"

"I am the foundation of all prosperity — I am the fountain from which all blessings flow. Everything that is of value springs from me. I am the salt that gives life its flavor.

"I am the sole support of the poor — and the rich, who think they can do without me, live futile lives and fill premature graves.

"I have built America. I have built her matchless industries, laid her incomparable railroads, created her cities, and reared her skyscrapers.

"I am the friend of every worthy youth. If he makes my acquaintance when he is young and keeps me by his side throughout his life, I can do more for him than the richest parent.

"I keep bodies lean and fit; minds, alert — and when I am neglected, both bodies and minds grow fat and sluggish. I am even the parent of genius itself.

"I am represented in every paper that flies from the press, in every loaf of bread that springs from the oven, in every train that crosses the continent, and in every ship that steams the ocean.

"Fools hate me; wise men love me.

"The man who keeps his hand in mine throughout his life never dies because that which he has created with my help lives on after he has gone. The man who shirks me and scorns my aid never lives — never really lives, even though he may continue to breathe.

"Who am I? What am I? I am WORK!"

Developing a Market

(continued from page 899)

with the printer often specifying a percentage of groundwood in the furnish of the finished sheet to gain resiliency and ink absorption on the press. We have played an important role in the development of lightweight papers with unusual strength and opacity for hard use in telephone directories and catalogues.

Beauty and durability have made decorative plastic laminates an important part of today's trend toward easier, comfortable living — they are used on kitchen sink and counter tops, shower stalls, and furniture throughout the house. Few people realize that these plastic laminates have their origin in southern slash pine, which is converted to a special grade of kraft paper, treated with resins and baked under high pressure and temperature to make the finished sheet. St. Regis manufactures St. Regis Panelyte, for which it initiated an extensive advertising and sales promotion campaign in February of this year. Quality control is one of our major sales factors since we control manufacture from the growing of the trees through the making of the paper which is the core stock for St. Regis Panelyte, to the final production of the plastic laminated sheet.

In addition to decorative plastic laminates, St. Regis manufactures Panelyte for the refrigeration, electrical and automotive industries. The company is also engaged in two other major plastics manufacturing fields — injection molding and vacuum forming. This is another step in our program of diversification, which also includes our entry into the fiberboard container field.

The growth of the corrugated container market has made us turn our attention to the growing market for gummed tape used in sealing many of these cartons. The problem was to get purchasers of gummed tape to specify St. Regis gummed tape. Purchasers of gummed tape naturally think in terms of how many lineal feet of tape they use in their sealing operations. What appeal could we use in our advertising and sales promotion? We have the advantage of quality control since we manufacture the paper used in the gummed tape and the glues used are high-grade animal glues. What does this mean to the customer? This quality can save valuable man-hours which would otherwise be lost in waiting for the gummed tape to dry and stick to the container.

Basic theme of our up-coming campaign is: "Don't measure gummed tape with a ruler!" The important sales factor is the emphasis on time saved.

Looking forward

Developing markets for new products and extending the market for present products requires continuing research and development. St. Regis is well aware of this, as is evidenced by the extensive facilities which it maintains to do this important work. These consist of a Central Technical Laboratory at Deferiet, N.Y., a Bag Testing Laboratory at its Pensacola (Fla.) Kraft Center, and its Product Development Department. At the end of the current year, St. Regis will have spent over a million dollars on research and development.

One of the most recent examples which demonstrates that this work pays dividends is the development by St. Regis of the semi-rigid container. This container, which is rapidly growing in use in the flour and corn meal industries, has a good potential in other applications.

The principle of the semi-rigid container can perhaps be best explained by taking family flour units as an example. The 2-, 5-, and 10-lb. packages of flour are not rigid in themselves, but when tightly compressed into the semi-rigid container by the St. Regis 250-B baler, the whole unit makes a squarely shaped package. The internal units support themselves; therefore, the package will not lose shape when highly stacked, nor will it crumple when exposed to high humidity.

Our Product Development staff, developing new papers and converted items, and our engineering organization, designing and installing packaging equipment for our customers' plants, work in close harmony with sales and production administration. By this policy of teamwork — of "selling all the way through" — St. Regis expects to continue to develop markets for new products and extend markets for its present products.

Stimulating Consumer Acceptance

(continued from page 897)

the towels sold by Walgreen Drug Stores, which today are sold as Melostrength paper towels. These towels were featured among the Miracles for Women Who Work in the January 1954 issue of *Charm* magazine.

Hollingsworth & Vose Co., manufacturer of laundry and dry cleaning tag stock, makes wet-strength paper for tags sold by their customers as Melostrength paper tags.

Marlan Corp., which makes the new woven paper fabric called Melo-Weve uses Melostrength twisting grade manufactured by International Paper Co. Brand new markets for ladies apparel have been developed with this fabric. During the past summer Lord & Taylor as well as B. Altman & Co., both fashionable stores in New York City, sold skirts made from the woven paper fabrics. The skirts could be dry cleaned, spot cleaned and even pressed with a low-temperature iron.

Beach Product Inc., which recently began to make wet-strength table covers, wanted to identify their product with a name that consumers would accept. They chose the Melostrength trade-mark as a way of relating their wet-strength table covers to wet-strength products like bathing suits.

Companies participating in the promotional program were given an extra boost through trade paper ads prepared by American Cyanamid. Each ad concentrated on a specific Melostrength paper product. For example, Cross Country Paper Products Corp., which manufactures wet-strength huck towels for use in beauty salons, was the subject of a recent ad, which also mentioned the Marlee Sales Corp., distributors of the towels.

The entire purpose of all these promotional activities is to help sell more paper by creating a consumer preference, in this instance for Melostrength paper. American Cyanamid, as a major supplier of chemicals to the paper industry, feels it has a share in the future of the industry. The more paper sold, the more chemicals must be used for making paper. Through the over-all educational program, everybody from paper manufacturer to the people who use the finished product benefits.

Social acceptability through information

An additional potential value that can be derived from this kind of educational program is increased social acceptability of paper. Best example of a paper product with growing acceptability is the paper napkin. Although not yet considered quite the proper thing to use on all occasions, the paper napkin is used more often today at social gatherings than ever before. Of course, this requires thorough acceptance of the product. This has been achieved by the paper napkin for many occasions — for use where softness, strength and lintless quality is desirable. These are quality improvements which consumers must have brought to their attention.

It was in this spirit of helping to increase the social acceptability of many kinds of paper that American Cyanamid, in cooperation with American Broadcasting Co., presented a TV tribute to the pulp and paper industry during the February 1954 convention of the American Paper & Pulp Association. In a half-hour live television show called "Life With Paper" starring Arnold Stang, and originating from New York City, the full significance and impact of paper on everyday life was portrayed. More than 30 paper companies contributed materials for the show.

Film versions of the live television show have been seen by audiences in more than 50 metropolitan centers across the nation. The response from people shows that there is a growing interest in paper products.

This is also reflected in the editorial interest which led to additional articles on paper — one in *Industrial Design* magazine, read by industrial engineers and design executives. In an article called, "Can You Make It Of Paper?" the editors stated that, "Today's paper (can be) viewed as entirely new material, combining strength and stability of plastic with suppleness of organic fiber." A wide variety of paper products which successfully helped solve industrial design problems was shown.

"Brand New Paper World," was the subject of a story in *Pageant Magazine*, where Melostrength paper skirts, hats and shoes as well as linens (made of paper) and curtains were among the products featured.

Perhaps you are wondering just how far we can expect to go with paper?

We believe the answer is that we can go as far as the quality of the product will allow. Constant cooperation between the paper and chemical industries has made possible many new grades. Quality improvement will go a long way toward increasing consumer acceptance of paper. If the progress made to date is any indication of the future, the paper industry may soon be manufacturing pillow case grades, raincape grades, and kitchen apron grades.

Effect of Mergers

(continued from page 905)

ness in hand or developed by the acquiring company and, of course, an increase in production at and distribution from the acquired plant.

Such a merger, however, may also result in a redistribution of production among plants of the parent company to provide for larger runs on certain kinds or qualities of product at one point, rather than small runs of such items at each of two or more plants. From such a program, the effects upon distribution would probably be those which would result from more efficient operation and lower production costs and the potential increase in demand as a result thereof.

Acquisition of one company by another for the purpose of filling a gap in seasonal lines will usually have no material effect upon channels or methods of distribution. However, the bringing together into one organization of two or more firms, each with seasonal products having peak demand loads at different times, can make for more efficient operation and distribution and reduce fluctuations in personnel demand. This could be reflected in better distribution services at lower end-prices for the products.

A merger effected for the purpose of acquiring personnel or organization might be with any one of several end objectives in view — "know how" in management, production, product research or development, promotion, distribution, etc., or for contacts. The full effect upon distribution will depend upon the specific case; therefore, generalization here seems redundant.

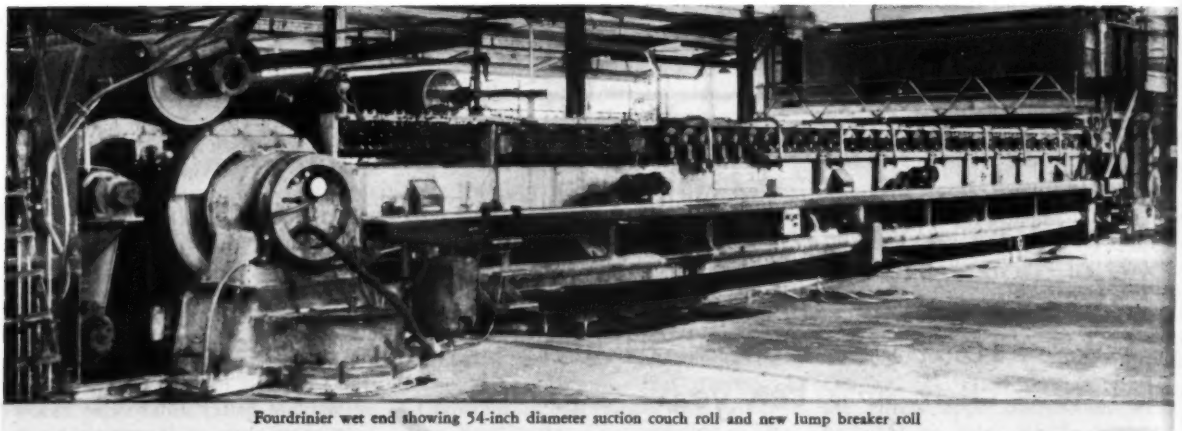
A merger for the purpose of expanding trade volume or to secure the benefits of greater financial or trade stature and prestige will, normally, result in improving both production and distribution of products as the result of greater efficiency all along the production-distribution lines, supplemented by the psychological advantage which the larger company usually enjoys with buyers, whether industrial, commercial or individual. Such a merger usually does not result in extensive changes in channels of distribution or switching of customers. Rather, it is more likely to result in improved products and services, greater efficiency and more certainty of continuity of service to customers, which, of course, may result in securing a larger percentage of the business of some of them.

PAPER SKETCHES

The BAKERY FLOUR Industry, with its 8,000,000 tons of flour – uses 160 million 100lb. capacity bags per year. As a result of a well directed market development program, today 90% of bakery flour moves in multiwall paper bags as compared with less than 10% ten years ago.

Just a **HALF CENTURY** ago, the first kraft paper was introduced into the United States from Sweden. So difficult was it to get odd sizes, that the distributor, Charles F. Hubbs & Co. imported large, jumbo rolls and installed a Hamblett sheeter in the warehouse--and cut the odd sizes that customers wanted.

The **MODERN WAY IS TO SELL** "all the way through", not only to the customer but also to the customer's customer, convincing both of the advantages incorporated in the new product.



Fourdrinier wet end showing 54-inch diameter suction couch roll and new lump breaker roll

25-Year-Old Liner Machine Beats Obsolescence

Now competitive in speed, tonnage and quality

A well-known Southern kraft mill recently completed a three-year modernization program, starting with the replacement of two-thirds of the original dryers with high-pressure dryers constructed for 150 psi, revamping of the sectional electric drive, and ending with a complete new fourdrinier wet end.

The original machine, built by Puseyjones in 1929 for a speed of 1000 F.P.M., was equipped with fourdrinier wet end for wire 240 inches wide and 80 feet long, and 36-inch suction couch roll.

The new fourdrinier of latest modern design is constructed for a wire 246 inches wide and 128 feet long with 54-inch diameter suction couch roll, and Rapidrape arrangement for fast, convenient wire change. Looking toward the future, the new fourdrinier was designed for a top speed of 2000 F.P.M.

Before modernization, the drying capacity was limited by the existing dry part comprising 58 paper and eight felt dryers of low pressure design. Seventeen of these dryers were rebuilt with new heads suitable for 75 psi and 41 were replaced with 150 lb. dryers. Six additional felt dryers were also installed. All dryers were equipped with roller bearings.

An increase of 30% in total production of liner board of higher grade has already resulted from the modernization program.

Talk over your machine rebuilding plans with Puseyjones engineers. A call or a letter will bring a nearby representative to your mill.

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Established 1848. Builders of Paper-Making Machinery

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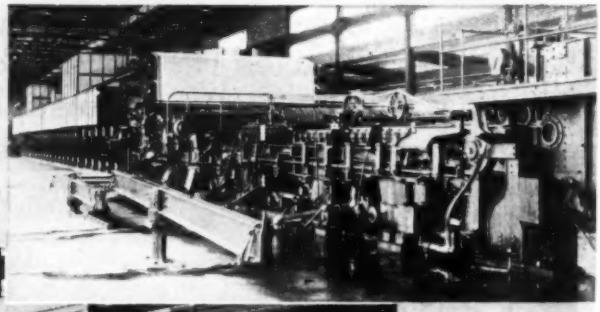
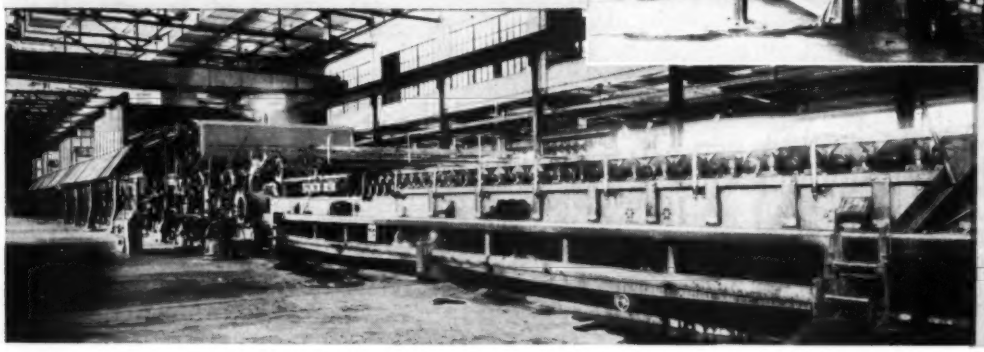




Machine as originally installed in 1929

Machine rebuilt in 1954 with new fourdrinier wet end

NEWS of the INDUSTRY

NEW NO. 4 machine at the Madawaska, Maine, mill of Fraser Paper Ltd. The 300-ft. Pusey & Jones unit is designed for a maximum speed of 2000 fpm and will add an annual 10,000 tons to the mill's capacity. Seen here are the Beloit pressure headbox, stainless steel fourdrinier and Simplex press arrangement

MEN RESPONSIBLE for the installation of No. 4 at Madawaska: J. W. D. Hierlihy, mill manager; S. M. Bratton, chief engineer for Pusey & Jones Corp.; Aubrey Crabtree, president of Fraser Paper; D. A. Forbes, chief engineer; J. S. Reed, superintendent of the bond mill, and S. G. Briscoe, P&J sales engineer

Fraser Paper Puts New Machine into Operation at Madawaska Mill

DESIGNED FOR THE production of bleached chemical woodpulp papers, the new No. 4 paper machine has gone into production at the bond mill of Fraser Paper Ltd. in Madawaska, Maine.

The machine was manufactured by Pusey & Jones Corp. and "incorporates the latest principles in the engineering of papermaking equipment." It is 300 ft. in length and 55 ft. in width and is designed to operate up to a speed of 2000 fpm. Some 10,000 tons of paper will be added to the mill's annual capacity.

Since the new machine is wider than the unit it replaced, the pit was widened 15 in. to provide clearance for the dryers and to ease the problem of broke removal. As a result, all supporting steel on the tending side of the machine had to be relocated. A penthouse was constructed to house the ventilating fans and economizers. A new electric substation houses the motor-generator sets, motor controls for the major units of the machine, and stock preparation equipment.

A new tile beater dump chest and tile machine chest were built. Four Morden Stockmakers and a DeZurik consistency regulator were installed. Two Goulds fan pumps have a capacity of 12,000 gpm at 40-ft. head. A system of Bauer centri-cleaners is located ahead of the four 2A Bird screens. Each fan pump has air-operated throttling valves, and the flow is automatically controlled from the level of stock in the Bird screens.

Headbox and Wire

The machine is equipped with a Beloit air-cushioned headbox with stainless steel lining. The fourdrinier takes a 196-in. by 94-ft. 2-in. wire and has a dual breast roll arrangement, micarta-tipped forming board, and micarta deflectors. The table rolls are rubber-covered, and the wire return rolls are of stainless steel. The suction couch roll is 44 in. in diameter with a 6- to 10-in. adjustable suction box. There is a 24-in. separately driven dandy roll and a lump breaker roll with air-loaded cylinders. The wire stretch rolls are raised and lowered hydraulically.

Press Section

The press section is a Simplex type having two 36-in. diameter rubber-covered suction press rolls, the first press having a 4-in. suction box and the second having a 4- to 8-in. adjustable box. The felt stretchers are operated by air motors. Felt cleaning is accomplished by means of suction boxes and Vickery felt conditioners.

Pre-Dryer Section and Yankee

In the pre-dryer section there are 23 paper dryers of 5-ft. diameter, eight felt dryers of the same diameter, and one transfer dryer 3 ft. in diameter. All are built for 75 psi.

The Yankee dryer is 12 ft. in diameter and built for 125 psi. It is equipped with Sunday drive. Two pressure rolls of 24-in. diameter are used.

Size Press and After-Dryers

The size press is equipped with a rubber-covered bottom roll and a pneumatically-loaded brass top roll. It is followed by a steam-heated 24-in. set roll separately driven and a Mt. Hope expander roll.

In the after-dryer section there are eight paper dryers, each 5 ft. in diameter and built for 125 psi.

The calender stack has eight rolls carried in steel frames and anti-friction bearings. The rolls are raised, lowered and loaded hydraulically. The

CLOSE-UP VIEWS of the Madawaska machine installation show (l) the Yankee dryer with a portion of the size press and one of the console-type control panels, and (r) the Morden Stockmakers. Unit is in operation at the bond mill

bottom roll is of the anti-deflection type. The doctors are pneumatically and hydraulically oscillated.

Reel, Winder and Drive

The reel is a Pope type with horizontal track, pneumatically loaded. There is a motor accelerator for reeling mandrels; the reel drum is water-cooled. The winder is Cameron type 19 with an hydraulically-operated roll lowering table.

The machine is driven by a Reliance sectional generator type drive having a speed range of from 500 to 2000 fpm. A slack take-up is used on the calender section only. Helper drives were supplied for certain units. The motors are force-ventilated by a central cooling fan and ductwork system. Controls for the individual drive motors are located in console-type panels on the tending side.

Dryer Drainage System

The dryer drainage system was supplied by Midwest-Fulton. A separate 250-lb. steam line was installed for the Yankee dryer. Steam for the pre-dryers and after-dryers, as well as for the felt dryers, is supplied from extraction steam from the turbines at 25 psi. By means of differential controls, various sections can be supplied from the flash steam from other sections. The first six dryers in the pre-dryer section and the first four dryers in the after-dryer section can be individually controlled to provide graduated temperatures.

Ventilating System

Ross open hoods and a ventilation system with stainless steel economizers are installed on the machine. The Yankee dryer is equipped with an exhaust fan, economizer and supply fan for a vapor absorption system. No economizer is used on the after-dryer section. Two fans supply outside air to the center aisle of the machine room. In the basement there are three units for the felt drying system. All supply fans are equipped with filters.

Watervliet to Use Hardwood

Watervliet Paper Co. of Watervliet, Mich., has launched a $1,000,000 improvement program that will permit it to use Michigan hardwood in the manufacture of paper and eliminate much of the waste it now dumps into the Paw Paw River. The announcement was made by George K. Ferguson, president.

According to the company, the improvements will include an increase in the capacity of the liquid sulfite plant from 12 to 50 tons per day. This will remove about 96 per cent of the settleable solids now deposited in the stream.

•

West Virginia Plans New Machine for Charleston

Engineering for a new fourdrinier kraft paper machine and supporting equipment at Charleston, S. C., has been authorized by the board of directors of West Virginia Pulp & Paper Co. The project would cost between $10,000,000 and $15,000,000.

The company has reported that preliminary studies indicate that the new unit will be a high-capacity fourdrinier capable of producing a sheet about 18 ft. in width "at speeds higher than any machines making comparable grades today."

The new machine would enable the mill to increase its production of improved surface linerboard, which the firm has recently started making for paper.

•

Hearst Studies Possibility of Mill in Nova Scotia

It has been reported that Hearst Publishing Co. is investigating the possibility of building a $10,000,000 newsprint mill at Sheet Harbor, N. S. The firm already controls a groundwood operation at Sheet Harbor through its subsidiary, Halifax Power & Pulp Co. Ltd.

Hearst has indicated that the proposed mill would have a daily capacity of about 200 tons. (The present groundwood mill, which was built in 1924, has a 24-hour capacity of 100 tons, all of which is shipped to Scott Paper Co. in the United States.)

According to the company, the expansion proposal hinges on two key factors: whether crown leases could be secured on the timberlands, and whether enough low-cost wood and cheap power could be obtained.

•

New Firm to Build Kraft Board Plant in Oregon

A multi-million dollar kraft board mill will be built near Albany, Ore., by Western Kraft Corp. President of the newly formed firm is Ira C. Keller.

Capacity of the proposed mill will be a daily 100 tons of kraft container board. Designed especially to utilize

wood waste, the mill will use about 40,000 cu. ft. of chips per day. Raw material will be contracted from sawmills and plywood plants in the central Willamette Valley. The finished product will be sold primarily to box fabricators with sales concentrated west of the Rockies.

Consulting engineer for the project is Sandwell & Co. Ltd. Bids for construction and machinery are to be issued in the near future. Completion date has been set for December 1955.

Mr. Keller was formerly with Container Corp. of America. He retired as executive vice president in 1953 to become associated with the Pacific Northwest company.

•

Scott-H & W Merger OKd

Stockholders of both firms have approved the merger of Hollingsworth & Whitney Co. and Scott Paper Co., which was to become effective October 27.

Under the agreement, holders of H&W common stock were to receive 1.4 Scott common shares for each Hollingsworth share held.

According to Thomas B. McCabe, president of Scott, "operation of the two corporations as a single enterprise offers many advantages. . . . Scott has been surveying possible plant sites in the Gulf Coast and lower Mississippi Valley areas for a modern integrated pulp and paper mill. The Mobile (Ala.) plant of Hollingsworth is one of the most modern in the world."

H&W has plants located at Madison and Winslow, Maine, and at Mobile. The firm's current rate of production of pulp and paper are in approximate balance at about 700 tons per day. It buys and sells pulp on the market in quantities not appreciably in excess of 50 daily tons. The merger brings into the Scott operation substantial timber lands in Alabama and about 1,000,000 acres of forest lands in Maine and eastern Canada.

•

C-Z Will Build U.S. and Canadian Mills

Crown Zellerbach Corp. officials in the United States and Canada have announced plans for a new kraft paper mill at Antioch, Cal., and a new kraft pulp mill at Duncan Bay, B. C. Both projects are in the final engineering stages, and production at each is expected in mid-1956.

The California operation will be located on a 42-acre site on the San Joaquin River. Its basic installation will be a 252-in. Beloit Iron Works paper machine that will have a daily capacity of some 400 tons of unbleached kraft papers.

Unbleached kraft pulp for the Antioch mill will be supplied primarily by the projected Duncan Bay plant, which will also have a 400-ton daily capacity. It will be constructed adjacent to the Elk Falls newsprint mill. A chipper, barker and other facilities will be added to the present wood mill. Wood will come from salvage logging on lands formerly harvested for lumber operations and from wood chips secured from sawmill and plywood plant waste.

•

$10,000,000 Expansion Planned by Brown

Brown Co. will launch a $10,000,000 expansion program with the proceeds of the sale of its Canadian properties. This according to Laurence F. Whittemore, president.

(The sale of Brown's properties in Canada — including woodland holdings, a bleached sulfate pulp mill and hydro-electric power interests — has netted the firm an estimated $46,000,000 in U. S. funds.)

The expansion program will include a new sulfate bleachery and a furfural plant in Berlin, N. H., as well as improvements and additions at other Brown operations. According to Mr. Whittemore, the sulfate bleachery would make the company independent of its LaTuque, Que., source. Also made possible would be an estimated $30 per ton savings before taxes on pulp now purchased from LaTuque.

The president also declared that Brown will retire its $12,800,000 of outstanding bonds, retire its second preferred shares at a cost of $4,000,000 and "acquire additional capacity."

SOMETHING NEW in the transportation of chemicals was inaugurated recently by Pennsylvania Salt Mfg. Co. in Portland, Ore., when a tug pushed a barge with four tank cars up the Willamette River to the West Linn plant of Crown Zellerbach Corp. Carrying 120 tons of liquid chlorine, the cars were loaded and unloaded without being removed from the vessel

61 Years Later —

1893 World's Fair Machine Still Producing at Nekoosa-Edwards

A PAPER MACHINE that was a center of attraction at the Columbian Exposition in 1893 is still in regular production at the Port Edwards, Wis., mill of Nekoosa-Edwards Paper Co.

Built by Beloit Iron Works for exhibition at the fair, the unit produced newsprint at the then prodigious rate of 298 fpm. So impressive was the display that Exposition officials awarded Beloit a certificate of merit. The award hangs prominently today in the offices of the equipment manufacturer.

The year of 1893 is remembered principally for two reasons — the famed Chicago fair and a major financial panic. Both events are closely related to the faith of Nepco and Beloit in the future of the paper industry.

It took courage for Beloit officials to invest virtually all of the firm's economic future in the construction of a full-size paper machine for the express purpose of display on the Midway.

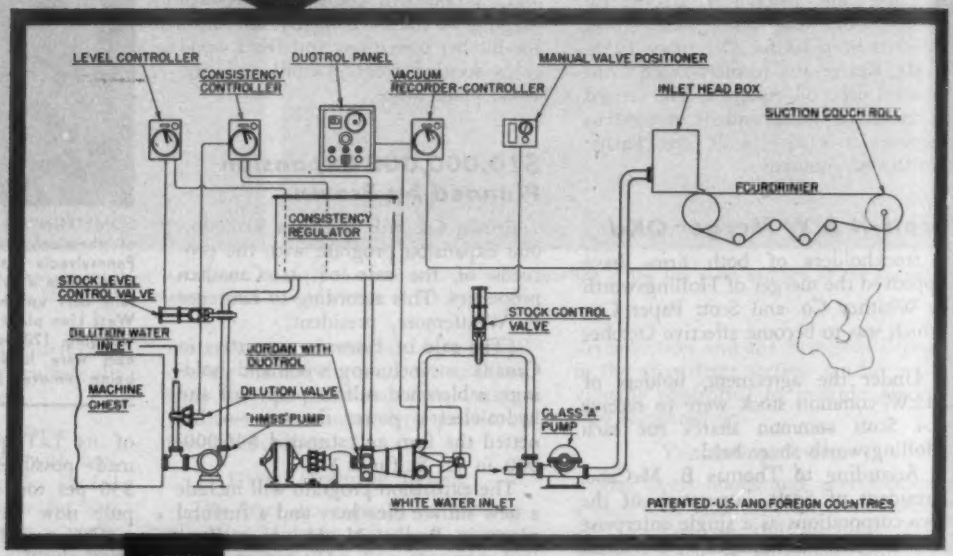
The machine's operating efficiency impressed officers of Nekoosa Paper Co. (predecessor firm to Nekoosa-Edwards), which was then just entering production. It was in April of 1893 that an agreement was reached between the two concerns for the sale.

Profitable at 60

Although it is not known exactly when the machine went into production, it is assumed that its installation was not completed until early 1894—60 years ago. Regardless of the exact date, this machine—known as the "World's Fair Machine"—is now producing watermarked bond at Port Edwards. It has been a profitable unit.

The machine was equipped originally with a wire approximately 50 ft. in length, two presses, seventeen

HOW *BLACK-CLAWSON* CONTROLS JORDAN PLUG SETTINGS FROM *SUCTION COUCH VACUUM*



There are two points in a mill from which to actuate a Duotrol* plug adjuster and influence the jordan load.

1. When the consistency and/or volume of the stock ahead of the jordan fluctuates to any appreciable extent.
2. When the vacuum at the suction couch varies from prescribed limits due to variations in fiber length and freeness.

In either case, the Duotrol plug adjuster forces the necessary adjustment of the plug setting.

It is this second method "suction couch vacuum control" that we would emphasize here. Space forbids a technical explanation, but full particulars are available. *Contact the Shartle Division.*

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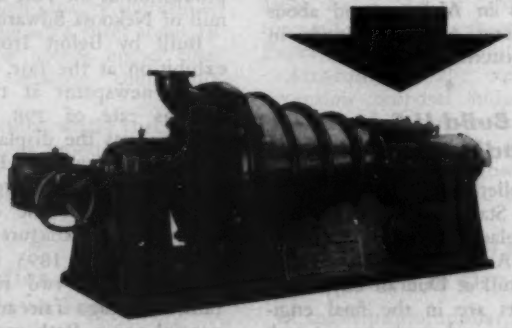
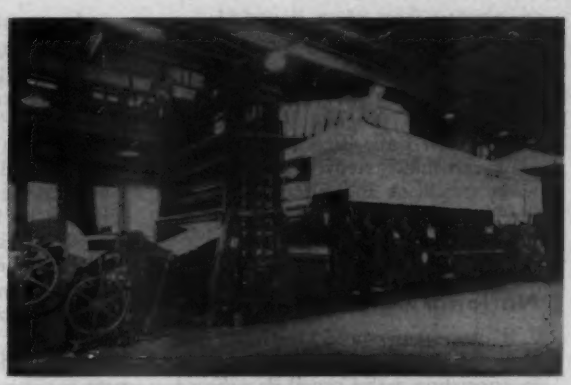


BLACK-CLAWSON

SHARTLE BROS. MACHINE DIVISION • Middletown, Ohio

WORLD'S FAIR machine in 1930, when it was producing 35 tons per day. It had been moved to Port Edwards in 1923



1954 PHOTO shows part of the dryer section, all that remains of the original unit. Present production is 50 tons daily

48-in. diameter by 106-in. face paper dryers, a three-roll breaker calender stack, a nine-roll finishing calender stack, a six-bowl reel, and a double-shaft type winder.

The unit was designed to produce groundwood newsprint at speeds of from 47 to 298 fpm, and its line shaft speed variation was controlled by means of a pair of three-step pulleys and a set of 11-ft. taper face pulleys.

At the Nekoosa mill the unit was installed as No. 2 machine. It remained virtually unchanged in this location until 1923, when it was completely removed and transferred to Port Edwards, where it was reinstalled and identified as Alexander No. 7 machine.

One Original Section

Although the machine now would not be recognized as it was when it was installed, there is one section—the dryer section—that has remained unchanged over the years.

In 1926 a 25-in. diameter suction couch and a 24-in. diameter suction first press were added. In 1927 a program was inaugurated for the installation of heavy-duty anti-friction bearings on the press rolls.

At one time during its life the machine was producing high-grade wrapping paper.

In 1939 a used Rice Barton & Fales dryer section was purchased from Howland Pulp Co. to replace the main section dryers. This section consisted of twenty-eight 48-in. diameter by 110-in. face dryers and frames. It was reconditioned to incorporate two felt dryers and a rope carrier system. A second nine-roll calender stack, a stack reel and a two-drum winder were also added at about this same time.

Constant Change

In 1940 the drive part of the machine was rebuilt, and all the open core gear drive units were replaced with enclosed gear units and heavy-duty clutches.

In 1941, due to market changes, a 75- by 128-ft. extension was added to the mill to accommodate a new tub size addition to the machine. This change added six more dryers to the main section, a new size press, and utilized 10 old 48-in. diameter dryers with frames from the original main section for the size dryer section. The fourdrinier was also rebuilt to lengthen the wire to 65 ft. and add a new shake arrangement.

Subsequent additions include a new 11-roll calender stack in 1947, a new center wind reel in 1948, a new Valley inlet in 1953, and a main section dryer reconditioning program, also completed in 1953.

While the present speed on fine paper grades now ranges up to 725 fpm, further studies are now being conducted to explore the possibilities of providing future increases to the 1000-fpm range.

Gulf States Buys Huge Alabama Plant Site

Gulf States Paper Corp. has announced the purchase of a 1550-acre plant site on the Tombigbee River near Demopolis, Ala. According to Jack W. Warner, executive vice president of the Tuscaloosa firm, the land was purchased in order to provide a location for further expansion of the manufacturing division.

He declared that the future construction of a pulp and paper mill at Demopolis would not preclude expansion at the Tuscaloosa plant. Mr. Warner explained that because of water conditions at Tuscaloosa the construction of expanded facilities would be given priority at Demopolis.

He further stated that whenever stream conditions of the Black Warrior River are such that ample water for the manufacture of pulp and paper is available, further Tuscaloosa expansion would be considered. The modernization now in progress at this plant will continue.

•

New Fourdrinier for Mead in North Carolina

The Mead Corp. is installing a 152-in. Downingtown Mfg. Co. fourdrinier on No. 1 machine at Sylva, N. C. It will be used in the production of corrugating, 0.009 point, using semichemical or chestnut furnish.

The unit is cantilevered, and stainless steel is used on all parts exposed to corrosion. It has 26 table rolls, a 24-in. diameter stainless steel-covered breast roll, and a 36-in. diameter drilled face suction couch roll.

The couch roll is mounted on anti-friction bearings in a special pair of housings that are attached to the end of the main fourdrinier frames. This will eliminate the necessity of applying any cantilever stress to the couch during wire changes, the main fourdrinier frame assuming the entire load for this purpose.

The main frame is supported by four unit-controlled hydrometers that may be dropped away from the bottom of the main frame for cantilevering during wire changes.

•

Hudson to Spend $15 Million in Florida

The "first fully integrated tissue product manufacturing operation in the South" will be built by Hudson Pulp & Paper Corp. at its Palatka, Fla., division. According to the firm, the expansion will cost $15,000,000 and will include the installation of a high-speed paper machine.

The fourdrinier will have a daily capacity of 80 tons and will produce facial and toilet tissue and household napkins from bleached sulfate pulp. Contract for the project, which will

require about 20 months to complete, will be awarded to J. E. Sirrine Co. of Greenville, S. C.

In addition to the paper machine, the expansion program will include pulp dryers, three digesters, a bleach plant, chemical recovery equipment, water treatment and filtration plants, turbines, etc. Several new buildings will be constructed.

•

National Carton Sold

It was announced recently that Robert L. Lasater and Albert P. Degen in association with Cornell Paperboard Products Co. have purchased all the outstanding stock of National Carton Co., Joliet, Ill.

New officers of the firm will be Mr. Lasater, president; Mr. Degen, vice president; John P. Clemens Sr., secretary and treasurer.

Mr. Lasater has been southwest industrial sales manager for Scott Paper Co. Mr. Degen was formerly with Lord Baltimore Press.

Future plans include the expansion and modernization of present plant facilities and the acquisition of additional modern high-speed equipment.

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G. E. Supplies $3,500,000 in Electrical Equipment to New Bowaters Mill

Electrical equipment totalling $3,500,000 has been supplied by General Electric Co. to the new $60,000,000 Calhoun, Tenn. newsprint mill of Bowaters Southern Paper Corp. (See THE PAPER INDUSTRY for October, page 698.)

Backbone of the electrical installations is two 10,000-kw GE turbine generators. One operates condensing with extraction at 50 psi; while the other is non-condensing, with extraction at 150 psi and 50 lb. back pressure. Complete GE turbine room switchgear equipment is also furnished in the installation.

The 20,000-kw generating capacity of the new turbine-generators represents approximately one-half the mill's total requirements. The remaining electrical power needed for operation, according to Bowaters engineers, will be purchased.

GE power distribution equipment supplied includes: a 30,000-kva master unit substation; twenty 750-kva load center unit substations; three 2000-kva primary unit substations for stock preparation and a raw water pump house; two 3000-kva primary unit substations for paper machines; one 4000-kva primary unit substation for the main power plant, and a 1500-kva load center substation for grinder room auxiliaries.

Other equipment: synchronous motors for vacuum pumps, fan pumps, jordans and refiners; and induction motors for boiler feed pumps and induced-draft fans.

4500-hp Units for Grinders

Eight 4500-hp synchronous motors are used to drive the grinders, each in conjunction with associated control

BATTERY OF eight 4500-hp synchronizing GE motors in the grinder room of Bowaters Southern Paper Corp.'s newsprint mill at Calhoun, Tenn.

equipment. These units are of the 4000-v, totally-enclosed, self-ventilated type, having air-to-water heat exchangers. Each grinder motor is excited by a separate 20-kw motor-generator set.

Engineers have reported that the 13.8-kv primary distribution is unique for paper mills. At all voltage levels the transformer neutrals are grounded.

In addition, General Electric was the supplier of two complete sectional drives for the paper machines. These identical drives feature electronic-amplidyne regulators. Each machine has 17 dc motors totalling 2090 hp and 17 dc generators and amplidyne generators totalling 1615 kw. One main motor-generator set supplies power to the machine wet end, while the other powers the dry end.

•

Dryden Doubling Output

Dryden Paper Co. Ltd. of Dryden, Ont., plans to double its present output in four years at a cost of $11,600,000. The annual capacity will be increased to 142,000 tons from the present 72,000. The step-up will result from the expansion of bleached and unbleached kraft pulp capacity to 92,000 tons per year. Target date for completion is 1958.

A MILESTONE in reforestation in the United States was reached when Gaylord Container Corp. planted the 100,000,000th pine tree seedling on its man-made forest at Millard, Miss. Among those present for the ceremonies were (l to r) A. C. Goodyear, chairman of Gaylord's board of directors; J. K. Johnson, formerly chief forester for Great Southern Lumber Co.; Miss Mary Easton Goodyear, great granddaughter of one of the founders of Great Southern, and C. W. Goodyear, first vice president of Gaylord

Paper Industry Imports Called Major Factor in U. S. Foreign Trade

United States imports of pulpwood, wood pulp and paper in 1953 amounted to about $935,000,000, equal to 9 per cent of the total value of the nation's imports, according to E. W. Tinker, executive secretary of the American Paper & Pulp Association. In addition, he said, substantial quantities of chemicals, casein and other materials, as well as equipment, are imported.

Although pulp and paper's importance as a supplier of foreign exchange is not generally known, he declared, purchases by it abroad are a mainstay to the economies of several countries. As an example, imports from Canada in 1953 amounted to more than $775,000,000, equal to about 31 per cent of the value of all our imports from that country. In turn, these purchases helped underwrite 25 per cent of Canada's purchases from us.

(Turn to Page 922)

WIRE DRAWING • QUALITY CONTROL
LOOM CONSTRUCTION AND MAINTENANCE
ENGINEERING • WEAVING
RESEARCH
INSPECTION • FINISHING
CAREFUL SHIPMENT
Each step is deliberately careful with a view to making Fourdrinier wire cloth better, in order that better paper may become likewise a reality.
THE LINDSAY WIRE WEAVING COMPANY
Cleveland 10, Ohio
LINDSAY WIRES
Since 1904
FOR PAPER MANUFACTURING

TWIN STACKS tower over Hammermill plant. Overhead belt conveyor runs from bucket elevator to shuttle conveyor feeding bunkers. Carload of coal is moving into position over track hoppers

51-FOOT SHUTTLE belt conveyor distributes coal to bunkers along a 105-ft. bunker section. The 24-in. belt handles 150 tons per hour at a belt speed of 325 fpm. Belt is designed to run in either direction

14,000 Tons of Coal per Month Handled Efficiently at Hammermill

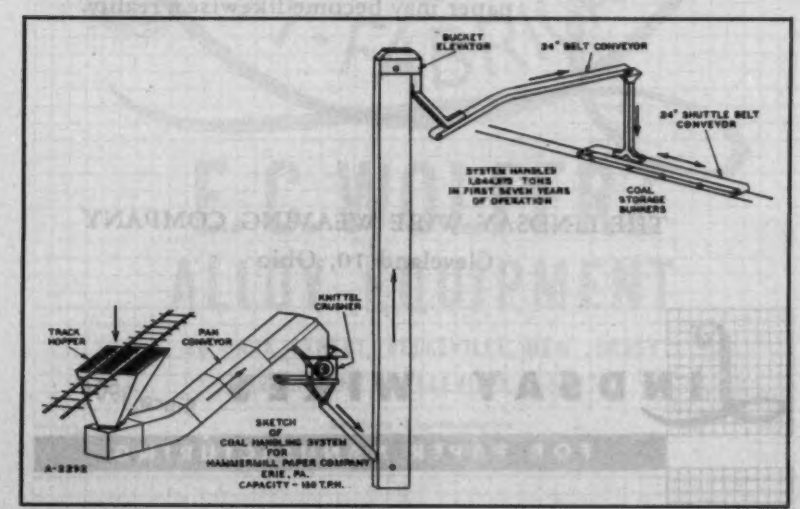
COAL PASSES through the huge Hammermill Paper Co. plant at Erie, Pa., at a 14,000-ton per month clip. Its heat produces electrical power and steam in a plant that has a total capacity of 22,000 kw.

In 1947 more than $2,000,000 was spent to consolidate and enlarge the power and steam facilities to meet the needs of the firm. In the first seven years of operation of the newly expanded system, 1,044,075 tons of coal were delivered to the mill by rail.

From the track hopper a Stephens-Adamson Mfg. Co. pan feeder delivers coal to a Knittel crusher, which reduces the 4-in. lump size to less than ¾ in. Coal passes through the ring-type crusher at a 150-ton per hour rate, falling to the loading leg of a continuous bucket elevator. Chain-mounted buckets lift the coal 77 ft. to start it on its way to the storage bunkers.

The elevator discharges to a 24-in. belt conveyor running to a height of 40 ft. at an 18-degree slope. After a 69-ft. horizontal run, it discharges to a shuttle belt running over the bunkers. A magnetic-head pulley on the belt removes any tramp iron that has passed the crusher, and an S-A spring-type belt cleaner removes coal particles adhering to the belt conveying surface.

The 51-ft. shuttle belt distributes coal along a 105-ft. bunker section. It has a travel speed of 68 fpm and a belt speed of 325 fpm. The 24-in. belt handles 150 tons per hour and is equipped with auto-tilt, self-reversing carriers. A motor-mounted solenoid brake holds the shuttle in position for fixed discharge.


BUCKET ELEVATOR
24" BELT CONVEYOR
24" SHUTTLE BELT CONVEYOR
SYSTEM HANDLED 1,044,075 TONS IN FIRST SEVEN YEARS OF OPERATION
COAL STORAGE BUNKERS
KNITTEL CRUSHER
TRACK HOPPER
PAN CONVEYOR
SKETCH OF COAL HANDLING SYSTEM FOR HAMMERMILL PAPER COMPANY ERIE, PA. CAPACITY - 150 T.P.H.
A-2292

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Union Official Sees Steady Southern Trend in Industry

A steady movement of the paper industry out of the North and East and into the South has been cited by Paul L. Phillips, president of the International Brotherhood of Paper Makers (AFL).

The speaker gave the following reasons for what he termed "a general shift of paper production to the South:"

(1) Lower power rates; (2) fast-growing pine timber, and (3) the production of stronger paper from southern pine than from poplar and spruce, etc. as processed by northern mills.

•

Western Michigan Adds Micro-Biology Facilities

With the purchase of complete equipment from the federal government, the paper technology department of Western Michigan College has added micro-biology facilities. Although the Kalamazoo school offers no courses in micro-biology, the equipment is being used in special research and graduate work.

Included in the purchase were an incubator, autoclave, a complete set of glassware, reagents and cultural media. The purchase was made possible through the efforts of the laboratory equipment committee, headed by Olin W. Callighan, manager of special accounts for the Edgar Div. of Minerals and Chemicals Corp. of America and national chairman of the Industrial Affiliates of the Superintendents Association.

•

South Maintains Lead in Pulpwood Production

During 1953 the South harvested a record pulpwood cut and maintained its position as the nation's chief pulpwood producing region.

A report recently released by the U. S. Forest Service shows that the 12-state region last year cut a total

WATER COLOR PAINTING BY L. J. A. NEESE

SINCE 1858 the plant of Beloit Iron Works, on the bank of the Rock River at Beloit, Wisconsin, has grown with the paper industry, and now occupies 16 acres of ground and employs over 1700 men and women. Advanced engineering and highest standards of craftsmanship are key factors in designing and building of Beloit high-speed, high-production paper machines.

of 16,127,000 cords. This was 61 per cent of the total receipts of domestic pulpwood at all pulp mills in the United States. Georgia was the leading producer in the region.

The South's pulpwood cut in 1953 was nearly 11 per cent greater than in 1952 and 15 per cent larger than in 1951. All southern states except Tennessee showed increases. Largest gains were recorded in Georgia, Virginia and North Carolina.

Pulpwood cut in 787 counties

In attaining its place as the South's leading producer, Georgia sold 2.9 million cords in 1953. Mississippi ranked second with 1.9 million; Alabama and Florida were next with 1.8 million and 1.7 million, respectively. All other states in the region except Arkansas, Tennessee and Oklahoma produced more than 1,000,000 cords each.

Pulpwood was produced in 787 counties in the South, but 25 per cent of the total was produced in the 51 counties having cuts of more 60,000 cords each. Clinch County, Ga., led with nearly 147,000 cords.

Progress in the use of hardwoods for pulp is reflected in the report. In 1953 hardwoods (exclusive of dead chestnut) made up 1,918,000 cords of the South's total.

This year's report included for the first time the amount of pulpwood obtained from residues of other forest products industries. The total was 76,000 cords.

•

Canadian Government Action Threatened in Woods Overcutting

Unless overcutting on Canadian forests stops, the government at Ottawa will be forced "to take steps." This according to Jean LeSage, minister of northern affairs and natural resources.

According to Mr. LeSage, proof that Canadian timber lands are being overcut is expected from a nationwide federal survey that will be completed "in two or three years." He emphasized that no action will be taken until federal-provincial meetings are held on the subject.

The minister made it clear that only if the provinces fail to enforce a program to perpetuate Canada's forest resources will the federal government step in.

(Turn to Page 926)

LATTICE BRAID* Teflon† PACKING

gives 4 to 5 months service on sulfite liquor pumps at Northern Paper Mills Division, Marathon Corporation

*Registered Trademark. *Only* Garlock makes LATTICE BRAID rod and shaft packings.

The packing used on the liquor circulating and transfer pumps connected to evaporator units meets with extremely severe service, according to J. J. Luebke, mechanical engineer at Northern Paper Mills, Green Bay, Wis. The fluids handled—spent sulfite liquor and acid condensate—are very corrosive. Since the packing originally supplied by the pump manufacturer did not last long, Northern Paper Mills decided to try LATTICE BRAID Teflon Packing. Mr. Luebke now reports that LATTICE BRAID Teflon gives 4 to 5 months average service on all evaporator pumps.

Put Garlock LATTICE BRAID Packing to work for your company. All the braided strands of this unique packing are lattice linked together into one structural unit. The strands hold together even when the packing is worn far beyond the limits of wear of ordinary braided packings.

LATTICE BRAID is made from flax, cotton, asbestos, wire-inserted asbestos, Teflon, and asbestos with Teflon impregnation—for various types of services.

Get all the facts about LATTICE BRAID *Packings. Contact your Garlock representative or write for new folder AD-131.*

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In Canada: The Garlock Packing Company of Canada Ltd., Toronto, Ont.

† The Du Pont Company's Trademark

GARLOCK LATTICE BRAID PACKING

EFFICIENT MATERIALS HANDLING methods team up in this modern warehouse of Waldorf Paper Products Co. in St. Paul, Minn. A monorail transfer crane system manufactured by Louden Machinery Co. covers all six fireproof sections that comprise the 580-ft. building. The cab and carrier travel speedily from one section to another delivering bales of waste paper to any desired location and place them in whatever position is required for safe and compact stacking. The bales are lifted by Heppenstall Co. automatic tongs, all operations of which are controlled by the craneman from his cab. No ground men are required. At the left is a general view of the installation, while at the right is shown a close-up of the cab and automatic tongs

Port Huron Expansion

Port Huron Sulphite & Paper Co. of Port Huron, Mich., will install within the next year a paper machine for the production of light-weight dense specialty papers.

According to the firm, a contract has been signed with the Black-Clawson Co. for the major items of equipment.

•

Newsprint Mill Planned for Oklahoma-Arkansas Area

Dierks Forest Inc. of Hugo, Okla., has proposed the construction of a 50,000-ton newsprint mill in the Oklahoma-Arkansas region. The firm, formerly Dierks Lumber & Coal Co., is headed by Fred Dierks and is the largest holder of timberland in the two-state area.

Directors of the Southern Newspaper Publishers Association have endorsed the proposal and have agreed to help get commitments from publishers to buy the output of the mill.

•

Alaska P&C to Rayonier

Arrangements have been concluded for the sale to Rayonier Inc. of the majority of interests in Alaska Pine & Cellulose Ltd. now held by Abitibi Power & Paper Co. Ltd. and the Koerner interests of Vancouver, B. C.

Mando Intensifies Forest Management Through Modern Business Methods

MODERN BUSINESS MACHINE methods are helping Minnesota & Ontario Paper Co. to intensify its forest management activities.

Using International Business Machine card techniques, Mando has established a program to obtain periodic and accurate inventory of pulpwood and sawlog volumes by species for company-owned lands.

In 1953 the International Falls, Minn., division installed a system covering all the company's land, representing about 260,000 acres. Permanent one-seventh-acre circular plots were set up about a mile apart. Each tree in the plot was surveyed as to size, kind and age and was assigned an IBM card showing the data.

At regular intervals these plots will be re-examined and the data compared. As it works out, one plot represents about 350 acres of ownership and one tree about 2500 trees. By sampling these small representations, forest management officials are able to more accurately estimate the status of the entire 260,000 acres.

Better Forest Management

The continuous inventory survey will maintain correct volume figures on the books of the accounting department; obtain accurate growth figures by the re-measurement of the forested areas at periodic intervals, keeping inventory figures current and indicating desirable practices for future management; obtain other information such as areas and volumes by timber types, densities, size classes, vigor classes, site classes and cutting periods.

All this information will be available once the system has been in use for several years. However, consider-

IDENTIFYING THE TREE, a Minnesota & Ontario Paper Co. forester sprays a number on the trunk for future reference in compiling information

USING MODERN system, forester marks required data on a business machine card, which is then filed in the carrying case

CARD SORTING machine is operated by office worker in the tabulator room at Minneapolis, where forest inventory results are checked

able immediate information resulted from the first survey:

1. An increased volume of pulpwood and sawlogs was found on company lands as compared to previous surveys.

2. A large volume was listed as mature and in need of cutting during the next 10-year period.

3. Considerable volume of specific species of both sawlogs and cordwood was found not being used, pointing to the need for greater utilization of these species.

4. The full scope of the task of restoring non-productive land to usefulness by planting or other means was realized for the first time.

5. The survey showed that the company's ownership is for the most part located on good or medium sites.

This program does not take the

Rated performance of every Nash Vacuum Pump is assured by this precise laboratory test

Rated capacities of Nash Vacuum Pumps are not theoretical. Every Nash Pump is tested individually. Air capacity is determined by delivery thru accurately machined and calibrated orifices. Related vacuum is measured by precise mercury column, and horse power is recorded electro-dynamically. Records of these tests are retained by us, and certified copies are available to Nash Pump owners.

That is one of the reasons why Nash Vacuum Pumps are installed in over a thousand leading Paper Mills. An engineer from Nash will be glad to survey your mill, and make recommendations, entirely without obligation to you.

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place of the operational cruise necessary in the setting up of cutting areas and the laying out of logging jobs.

It has been estimated that it required about 507 man-days to gather the needed information from the representative plots. Office work required about 100 man-days in computing the information. The entire job was done and results available within a four-month period.

The forest inventory system was utilized because it would yield a vast amount of information promptly and at a reasonable cost. Such information is needed as a guide and control over all forest management policies and activities.

•

Pulp Industry May Reach New Highs in '54

The nation's pulp industry seems bound for new highs this year — as in six out of the last eight years — in both production and consumption. According to Lawson P. Turcotte, president of Puget Sound Pulp & Timber Co., a third-quarter check indicates heavier exports and domestic consumption riding on an even keel, perhaps a little above last year.

Production in the nine months was 13,548,000 tons, 403,000 more than in the same 1953 period. More than half the increase was accounted for in exports of 297,000 tons, against 96,000 tons last year.

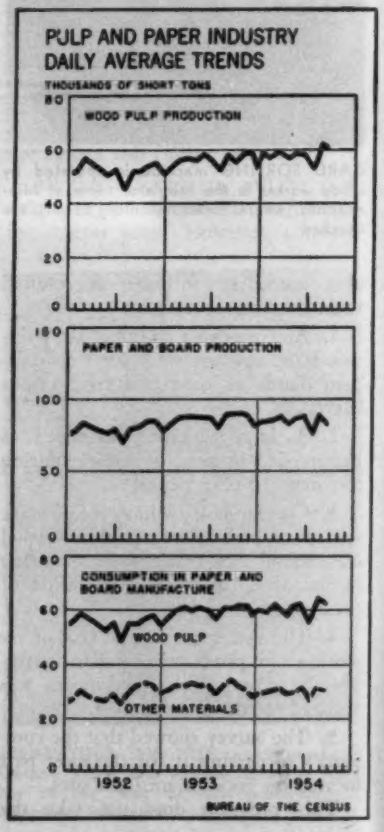
Imports of pulp were 1,500,000 tons, Mr. Turcotte estimated, 120,000 less than in the 1953 period. Indicated domestic consumption was 14,751,000 tons, up 80,000. He regarded this as significant in view of a slight loss in overall industrial production.

•

September Pulp, Paper and Board Production

Paper and board production during September amounted to 2,208,196 tons, according to a report released by the Bureau of the Census. This is less than 1 per cent below the 2,226,847 tons produced in September a year ago. Paper production amounted to 960,764 tons, almost 2 per cent above the 940,166 tons of September 1953. The output of paperboard during the month was 977,757 tons, reflecting a 6 per cent decrease from the production of 1,040,530 tons reported a year ago.

Pulpwood receipts at the pulp mills



If outmoded methods seem good enough...

you probably won't be interested in the new, modern way to package your paper most attractively and faster, at less cost.....

but

this is pretty hard to believe. Pride in your product must certainly demand that your packages advertise and protect the fine quality of your paper from mill to consumer — and few manufacturers pass up an opportunity to maintain quality at lower cost . . This is why the new Griswold & Johns machine has a place in your finishing room. Your paper is precisely wrapped, sealed and labeled in one automatic operation, with one man. Every ream is as attractively and securely packaged as all the others. Every sheet comes to the consumer flat and fresh; dirt and dust free . . . and your package production goes up; your costs go down.

Have our engineers, without obligation show how this machine can be adapted to your needs. Call Harrison 7-2742, or send for free folder.

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Engineers and Builders of Special Automatic Equipment

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during the month amounted to 2,484,215 cords, with consumption at 2,412,316 cords. Month-end inventories at 4,792,433 cords showed an increase.

Wood pulp production during September amounted to 1,500,009 tons, as compared to 1,426,433 tons a year ago.

Wood pulp inventories at the end of September at the paper and board mills amounted to 501,703 tons, showing an increase of less than 2 per cent during the month. Month-end stocks at the pulp mills were 165,586 tons.

•

U. S. Paper and Paperboard Production

	Sept. 1954 (tons)	Aug. 1954 (tons)	Sept.1953 (tons)	Total 1953* (1,000 tons)	Total 1948
Paper and Board, total	2,208,196	2,288,150	2,226,847	26,459	21,897
Paper, total	960,764	990,016	940,166	11,394	11,119
Newsprint	99,665	101,956	85,339	1,069	876
Groundwood paper (uncoated)	67,816	67,377	65,719	771	772
Printing and converting (coated)	100,801	105,242	95,493	1,182	809
Book paper (uncoated)	130,979	135,415	133,570	1,623	1,570
Fine paper (writing, cover and text, bristols, thin paper and other)	110,231	112,270	103,588	1,290	1,141
Coarse paper (unbleached kraft, glassine, greaseproof, vegetable parchment and other)	280,604	293,602	283,163	3,398	3,037
Special industrial paper (including absorbent)	44,606	43,966	44,500	553	415
Sanitary tissue stock	106,083	111,231	104,056	1,277	983
Tissue paper (except sanitary and thin paper)	19,879	19,848	19,738	231	205
Paperboard, total	977,757	1,028,789	1,040,530	12,220	9,366
Container board, total	527,232	558,232	560,931	6,613	5,079
Liners	355,087	370,288	375,395	4,411	3,347
Corrugating material	151,297	163,932	160,260	1,906	1,376
Container chipboard	20,848	24,012	25,276	296	319
Bending board	289,527	305,966	303,473	3,566	2,153
Nonbending board	75,993	77,379	87,684	898	597
Special paperboard stock	78,038	80,486	81,912	1,071	1,568
Carboard	6,968	6,726	6,525	72	87
Wet machine board, total	10,225	10,844	12,787	155	142
Construction paper and board, total	259,450	257,601	233,364	2,688	2,591
Construction paper	128,181	125,948	125,110	1,312	1,321
Hardboard and insulating board	131,269	131,653	108,254	1,376	1,270

(*) Preliminary report. SOURCE: U. S. DEPARTMENT OF COMMERCE.

Small Landowner Vital in Canadian Forestry, V. E. Johnson Declares

"Without touching the Crown lands, 25 per cent of the wood needs of the Canadian pulp and paper industry could perhaps be supplied by farmers and small landowners on a sustained yield basis through good woodlot management." This was the view expressed recently by Vernon E. Johnson, president of Canadian International Paper Co., as he addressed several hundred woodlot owners.

Mr. Johnson pointed out that the fundamental purpose of a forest farm is to grow trees as a crop like corn, oats or hay.

He recalled that in 1947 Canadian International Paper's Hawkesbury dissolving pulp mill faced the prospect of closing its doors. He declared that the plant had consumed most of the softwoods in the area, and that the cost of softwoods that had to be brought over long distances by rail was putting the mill out of business.

"Then the research laboratories. . . came up with the idea of making dissolving pulp from local hardwoods, of which there were ample quantities in the area," Mr. Johnson concluded. "The mill was transformed at a cost of more than $8,000,000. The company owned 2,000 acres in the district and added another 1,000 acres by purchasing abandoned tree farms. It then established its Harrington forest farm to help local farmers and others learn the tree farming business.

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Tile Structures

Complete service—design, engineering, construction, maintenance—of corrosion-resistant storage and process structures—from the smallest to the largest.

For wet materials, these structures are reinforced concrete faced on both sides with glazed tile; for dry materials, they can be either this same construction or steel-reinforced hollow tile.

70 Years of Successful Corrosion Resistant Installations throughout the North American Continent

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A NEW and BETTER BEATER ADDITIVE

COLD WATER SOLUBLE

It's **chemical "hydration"** by the pound. Power savings and other gains offset its cost.

¼ to 1% on dry fiber weight added to furnish at very **beginning** of refining cycle is **effective.**

For details, see page 235 of Paper and Pulp Mill Catalogue, 1954-55 Edition.

No. 7 will "speak for itself" when tried. How much do you need for testing?

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"Better Products . . . Through Research"©

Euclid scraper and Transporter has engines at both front and rear. They are capable of picking and scraping a 30-ton load at the McIntyre operation

Spray Satin cake being built up to 58-60 per cent solids on rotating filter drum. Special doctor roll removes cake and deposits it in a blunger

How Spray Satin is made

The development of a process by Minerals & Chemicals Corp. permits the spray drying of a 60 per cent slurry

THE NEW SPRAY-drying operation of Minerals & Chemicals Corp. of America at McIntyre, Ga., has given this company a two-fold advantage, i.e., that of improved quality output and economy of spray drying.

The process guarantees a product of exceptional uniformity, high bulk density, and a moisture content of less than 1 per cent. Since this product can be readily put into suspension and "makes-down" easily, it is of particular interest to the paper industry, which uses coating clays at the rate of nearly 1,000,000 tons annually.

The unique efficiency of the company's process is derived from (1) an effective separation of three different particle-size clay fractions on Bird classifiers; (2) a rapid build-up of the solids content in the fine-clay slurry, and (3) the spraying of a 60 per cent solids content slurry made possible by the addition of tetrasodiumpyrophosphate.

Prior to the development of the high-solids spraying process, covered by Minerals & Chemicals patent No. 2540182, the maximum solids content of a clay slurry that would lend itself to effective spray drying was 25-30 per cent, entailing a costly evaporation of 70-75 per cent water. With the new process, only 40 per cent water has to be evaporated in the spray dryer.

Details of operation

After stripping the overburden, which may be up to 95 ft. in depth, the 30-ton capacity twin-engined Euclid scrapers mine and transport the clay to the milling shed. The Euclid scrapers were adapted to this particular clay mining operation by Minerals & Chemicals' own engineers.

Small Payloaders then move the clay into a mill where water is added to form a slurry.

After a primary de-gritting on a scalping screen, the slurry goes to a large thickener tank from where it is pumped over a distance of five miles through a 12-in. pipe line to the McIntyre plant.

At the plant, the slurry enters a thickener and then goes through a two-stage de-gritting process. At this stage a dispersant is added, the function of which is to allow the slurry to flow more freely and also to effect more precise and automatic particle size separation in the Bird classifiers. The classifiers select and separate the clay into three different particle-size fractions.

The fine slurry is then bleached with zinc sulfite and passed to a thickener which serves the dual purpose of raising the solids content and as a work-in-progress storage.

The slurry then goes through a vibrating Sweco screen, followed by passage through continuous de-watering centrifuges which build up solids content to a point where the slurry can be picked up on rotating vacuum filters. Here the kaolin cake is built up to a 58-60 per cent solids content.

A specially designed doctor roll, developed by Minerals & Chemicals, removes the cake from the filter drum, and a doctor blade slowly shaves the

Kaolin being dumped into milling vat where water is added and a slurry formed. This starts the process of water washing and fractionating

Cyclone recoverers where air exhausted from the drying chamber is scrubbed to remove stray kaolin particles that are exhausted with the air

Bottom of spray drying chamber where absolutely dry globules of Spray Satin fall and are fed by screw conveyor into pumps for airveying to storage

Furnace for spray-drying plant has five large burners that heat a steady flow of air to 1000°-1100° F., which then feeds into drying chamber

Controls maintain even heat in the spray dryer, enabling the production of Spray Satin at less than 1 per cent moisture and with high uniformity

Silos for storage of finished Spray Satin (background). Pipes, through which the product is airveyed, lead to the bulk loading platform (foreground)

cake and deposits it in a blunger where tetrasodiumpyrophosphate is added.

The addition of tetrasodiumpyrophosphate transforms the heavy cake into a free-flowing slurry with a solids content of 58-60 per cent. This slurry is then pumped through aluminum pipes to the spray-drying plant. It is further purified in the Sweco screen and in a magnetic filter.

The spray dryer consists of a large conically shapted chamber and a furnace equipped with five automatic oil burners. A flow of air, superheated to a temperature of 1000°-1100° F., enters the conical chamber from the furnace while the slurry is fed into the chamber through a 6-ton per hour capacity spraying nozzle from the top. On entering the chamber the spray hits a special impeller which spins at 10,000 rpm and deflects the spray into a fine umbrella-shape formation. The particles of kaolin are dryed instantaneously and settle at the bottom in the form of tiny, free-flowing globules. The air is exhausted from the drying chamber through a series of cyclones to recover any particles still floating in the air.

The currently operating spray-nozzle with a capacity of 6 tons per hour, will be replaced in the near future by a spray-nozzle of 10 tons per hour capacity — thus increasing the drying capacity of the new spray dryer by 80 per cent.

A screw conveyor returns the kaolin recovered from the cyclones to the base of the dryer. The well-mixed product in the dryer then enters a Fuller Airveyor System which transfers it to silo storage. From here it can be either pumped directly into hoppers or box cars by the same Fuller Airveyor System, which loads a 50-ton box car in the course of one hour, or drawn by gravity feed through an automatic bag packer. The bags used are 50-lb multiwall kraft bags equipped with a valve at the top for automatic filling. The filled bags run through a flattener and then, *via* roller conveyor, directly into box cars for shipment.

Minerals & Chemicals production operations in the McIntyre area are ably directed by an enterprising trio: Tom Falkner, director of production; B. K. Asdell, process engineer, and Calhoun Todd, production manager.

ALLIED NEWS

Black-Clawson Acquires Pandia

Frank T. Peterson, executive vice president of the Black-Clawson Co., has announced the acquisition of Pandia Inc. of New York, N. Y.

Tany Agronin
Pandia General
Mngr.

The new Pandia division, in addition to its present continuous digester and Brammer recording consistency control, will supply all items of equipment necessary to the pulp mill such as washers, pumps, valves, agitators, continuous and batch digesters, bleach systems, bleach towers, bleach mixers, pulp mill screens, etc. In addition, the Pandia engineering staff will be equipped to provide a complete pulp mill to the industry.

The New York firm has been best known for its work in the field of continuous cooking. The first continuous digester installation was made in 1940 and transformed the last major batch process in the pulp and paper industry into a continuous operation.

Present Pandia personnel will form the nucleus of the Black-Clawson Pulp Mill Div., which will be known as Pandia Inc., division of the Black-Clawson Co. This will bring the number of B-C operating divisions to six.

Agronin General Manager

Tany Agronin has been appointed vice president of Black-Clawson and general manager of the Pandia Div.

Mr. Agronin has been with the firm 17 years, working in the field of engineering and sales. Prior to this advancement he was chief engineer of the Shartle Bros. Machine Div.

L. G. Durant will continue as a Pandia vice president and will have charge of sales of pulp mill equipment. Newly appointed members of the Pandia board of directors are Dr. Joseph E. Atchison, vice president of Parsons & Whittemore Inc., and Dr. John N. McGovern, former chief of the pulping section of the Pulp and Paper Div., U. S. Forest Products Laboratory, Madison, Wis. Dr. McGovern is also chairman of the Tappi semi-chemical pulping committee.

Albany of Canada Expanding

Albany Felt Co. of Canada Ltd. has announced that ground has been broken for the construction of a one-story office building in Cowansville, Que.

Also, new equipment has been ordered for the yarn-winding, weaving and finishing departments. This includes a treating tank, stainless steel fulling mill, an automatic 24-spindle filling winder, and 350-in. and 420-in looms.

Scheduled for completion by January 1955, the estimated cost of the project is more than $250,000. When complete, the expansion will increase the plant's capacity by more than 25 per cent.

Allied News Notes

Industrial Crane & Hoist Corp. has moved to enlarged office and plant facilities in Chicago. The firm has more than doubled its manufacturing capacity for its expanded line of cranes.

General Electric has sent an engineer to India to assist in the start-up of that nation's first major newsprint mill. C. C. Collins will make final adjustments on the GE sectional electric drive system recently installed at National Newsprint & Paper Mills Ltd. at Chandi.

Kidder Press Co. has announced the expansion of the sales territory assigned Gibbs-Brower Co. Inc. of New York, N. Y. The firm has been made the representative for slitters and rewinders to all converters as well as to paper mills. The territory includes all of the United States and Canada east of the Rockies.

Link-Belt Co. has opened a district sales office and warehouse in the Guilds Lake area of Portland, Ore. District manager in the area is Lester T. Graham.

The New Orleans district office of **Bailey Meter Co.** has been moved to larger quarters at 909 South Jefferson Davis Parkway.

Quaker Rubber Corp., division of H. K. Porter Co. Inc., has completed the construction of a 16,000-sq. ft. warehouse in Philadelphia. The building doubles present factory warehouse space and includes a hose processing department and shipping facilities.

International Nickel Co. has inaugurated a series of conferences to acquaint engineers with the properties and applications of ductile iron. The first meetings were held at Worthington Corp. in Harrison, N. J., and at M. W. Kellogg Co. in New York, N. Y.

Austin Co., Cleveland industrial building firm, has established an engineering and construction company in Brazil. Known as Companhia Austin-Engenheiros e Constructores, the firm will have its headquarters in Sao Paulo.

To celebrate the manufacture of the 1,000,000th Yarway impulse steam trap, **Yarnall-Waring Co.** is sending out at random in their regular shipments 100 traps specially packaged in gold bags. Each customer who reports his "find" to the company is to receive a special gift as a memento of the occasion.

General Aniline & Film Corp. has broken ground for its new $6,000,000 chemical plant at Calvert City, Ky. The plant will be the first installation in this country for commercial scale manufacture of chemical products developed from acetylene at elevated pressures.

Norton Co. of Worcester, Mass., will add to its electric furnace capacity by building a plant at Huntsville, Ala.

Oldbury Electro-Chemical Co. has opened its $3,500,000 plant at Columbus, Miss., for the production of sodium chlorate for agriculture and industry. Facilities for the production of phosphorus pentasulfite are now under construction.

National Starch Products Inc. has purchased a tract of land at Meredosia, Ill., for the construction of a second vinyl resin plant. This operation will supplement the production of the Plainfield, N. J. plant.

Empire Steel Castings Inc. of Reading, Pa., has recently increased its casting capacity in an $800,000 expansion and modernization program. The project has doubled the plant area and tripled the production capacity.

Allied Personalities

Albany Felt Co. has announced the promotion of **John C. Standish** to executive vice president; **Wayne G. Davis** to vice president continuing in charge of

J. C. Standish

W. G. Davis

H. F. Hedberg

Carl Hendricks

Allied News . . .

felt sales, and **Harold F. Hedberg** to vice president in charge of research and development. Mr. Standish is also president of Albany Felt Co. of Canada Ltd. In another Albany appointment, **Carl Hendricks** has been named sales engineer for North and South Carolina and Tennessee. At one time Mr. Hendricks was associated with Ecusta Paper Corp. in Pisgah Forest, N. C.

George L. Forsyth, formerly secretary and mill manager of Kelly-Forsyth Paper Corp. in Port Leyden, N. Y., recently joined National Aluminate Corp. (Nalco) as a service representative. He will make his headquarters in Watertown, N. Y., and will serve the New England area and most of New York.

A. A. Hory Jr. has been named sales and service representative for Draper Bros. Co. to assist L. L. Griffiths Jr. in the southern and southwestern states. Mr. Hory was formerly with the Southern Kraft Div. of International Paper Co.

John C. Springer, formerly supervisor of package sales in St. Louis, has been named assistant manager of the St. Louis branch office of A. E. Staley Mfg. Co.

William H. Sparr Jr. of Pittsburgh has been transferred to New York, N. Y., and appointed in charge of the steel section of the nickel sales department of International Nickel Co.

Fred Enders, president of Bulkley, Dunton Processes Inc., has announced the appointment of **William L. Krapf** to the post of general manager. He was formerly executive vice president.

W. L. Krapf

A. J. Felton

Al J. Felton has been named executive sales engineer for Shartle Bros. of Middletown, Ohio, division of the Black-Clawson Co. He was formerly located in Fulton, N. Y., and represented the firm in New York and New England.

William H. Brandt, assistant secretary of Chain Belt Co., has retired after more than 44 years' service with the firm. He is being succeeded by **W. E. Schauer**, an administrative assistant in the financial department.

John P. Baird Jones has been named technical representative for Foster D. Snell Inc. in the British Columbia territory. His office will be in Vancouver.

H. C. Nichols, an odor abatement expert formerly with Engineering Corp. of America, has been named head of the engineering service section of the Industrial Reodorants ("Alamask") Div. of Rhodia Inc.

James E. Kuppe is the new general sales manager of Carver Pump Co. of Muscatine, Iowa.

Chain Belt Co. announces the appointment of six sales engineers: **Tom Jewell**, Milwaukee; **Jim Collins**, San Francisco; **Deane Treat**, Dallas; **Ray Tippett**, Philadelphia; **Jerry Plant**, Los Angeles, and **Henry Kozlowski**, Chicago.

B-C Staff Changes

Bagley & Sewall Corp., Watertown, N. Y. division of the Black-Clawson Co., has announced the appointment of Warren W. Macklem to the post of sales manager.

Adhering closely to a family tradition of serving the paper industry and following in the footsteps of his predecessor, W. W. (Bill) Macklem, Mr. Macklem joined the B-C sales staff in 1949.

In another B&S appointment, **A. G. Gibson** has been named assistant general manager. He was formerly chief engineer of the Hamilton (Ohio) Div. of Black-Clawson and was at one time associated with Central Fibre Products Co. at Hutchinson, Kan.

R. C. (Pop) Stewart, well known southern representative for Black-Clawson and its Shartle Div., has retired after more than 30 years of active sales work. Succeeding him is **R. M. Shetter Jr.**, who has worked under Mr. Stewart's direction for the past several years.

NEW Aerovent Vaneaxial FANS

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CONSTANT REGISTER FLEXOGRAPHIC PRESS

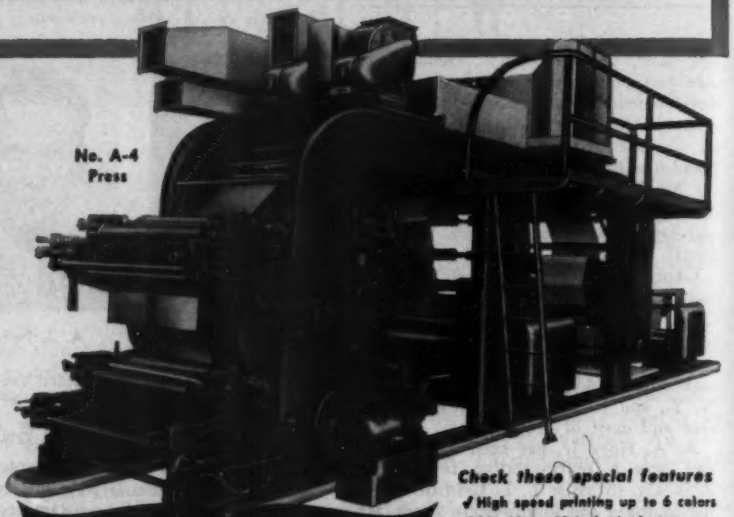
Prints one to four colors in accurate register on all types of flexible, S-T-R-E-T-C-H-Y materials

Thin papers, cellophane, foils and all the new film type materials are printed in accurate color register on this increasingly popular press. Large drum type impression cylinder accurately controls web through all color stations. Automatic electric drives maintain constant web tension at all times and rewinder features flying splice for continuous production without roll change stoppage. Other features include splashproof fountains, hydraulic throw-outs, continuous operating ink units, drying ovens and sheet threading device. Standard press up to six colors in any width from 20" to 50"—print repeats 12" to 36". Larger presses on special order.

Single Impression Cylinder

. . . Around which color stations are mounted, accurately controls material stretch or expansion permitting 24 hr. continuous register of all colors.

Write for new general line catalog on presses and allied processing machines.



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Check these special features

- ✓ High speed printing up to 6 colors
- ✓ 36, 60 or 83-inch single tympan
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- ✓ Automatic tension web controls
- ✓ Low range surface drying
- ✓ Continuous operating splash-proof ink fountains
- ✓ Automatic color throw-outs
- ✓ Prints 20" to 50", repeats up to 36"
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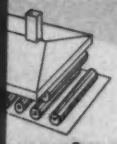

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ASSOCIATION NEWS

Package Design and Selection Discussed at N. Y. Tappi Meeting

T. J. Gross discussed the various aspects in the selection and design of packaging at a recent meeting of the Metropolitan District of Tappi's Empire State Section. Mr. Gross, who is technical advisor to Union Bag & Paper Corp., spoke at a gathering of 50 members and guests at Fraunces Tavern, New York, N. Y.

The speaker declared that there are three major areas to be considered in a container's design and selection.

In the desired characteristics, Mr. Gross listed: (1) protection; (2) carrier regulations; (3) adaptability of production facilities; (4) adaptability to storage and distribution methods; (5) cost; (6) advertising and display features; (7) re-use, and (8) consumer acceptance and convenience.

Principal Hazards

Among the major hazards to which the average container is exposed, Mr. Gross discussed: (1) impact or shock; (2) vibration; (3) puncturing blows; (4) crushing; (5) temperature changes; (6) moisture; (7) water and rain; (8) scuffing; (9) contamination, dust, odors, insects, etc., and (10) pilferage.

In conclusion the speaker described some of the principles of protection that should be considered in the manufacture: (1) enclosure; (2) retention; (3) stability; (4) restraint; (5) separation; (6) cushion; (7) compatability; (8) support; (9) clearance surface protection; (10) distribution of load-bearing surfaces; (11) position; (12) exposure for ventilation or inspection; (13) suspension; (14) closure, and (15) advertising or instruction.

Improved Paper Drying Discussed at Kalamazoo

Suggestions for the improvement of felts and paper machines to obtain better drying were made by Alfred H. Nissan at a recent meeting of the Kalamazoo Valley Section of Tappi. The speaker is a professor of research at the University of Leeds in Leeds, England, specializing in wool textile engineering.

1954 OFFICERS of the Paper Mill Men's Club of Southern California gather during the group's annual sports carnival at Glendale. They are (l to r): B. E. Calhoon of Marathon Corp., vice president; J. C. Fischer of Sherman Paper Products, president; Jack L. Perrin of Towlsaver Inc., secretary, and Asa L. Murray of Oregon Pulp & Paper Co., treasurer

Dr. Nissan presented an extensive report based on a scientific approach to what happens to a square foot of paper web as it leaves the press and is run over the dryers. He explained that several difficulties lie in the way of these calculations, including complexity of the mathematical formulas involved, areas of ignorance in the field, and the varying physical properties of paper.

Dr. Nissan, who in 1947 organized the central research laboratory of Bowater Paper Corp. Ltd., broke down paper drying processes into cycles within four phases of the drying operation, establishing a cycle for each drying cylinder. He pointed out that findings have checked very closely with actual machine operation in the case of a high-speed newsprint unit. However, Dr. Nissan declared, they varied greatly from those obtained with slow-speed machines, particularly as related to the amount of water that is obtained while the paper is covered with the dryer felt.

New officers of the section who assumed their duties during the meeting are: James A. Dean of Michigan Paper Co., president; Richard T. Trelfa of Watervliet Paper Co., vice president; Robert T. Elias of Western Michigan College, secretary, and Paul A. Applegate of Hercules Powder Co., treasurer.

PRINCIPALS at the Ohio Section of Tappi meeting recently in Middletown, Ohio, were Dr. W. H. Brecht (l), director of the Institute of Paper Manufacturing at Darmstadt, Germany, and Harold Joiner, section chairman. Dr. Brecht's subject for the Ohio group's first meeting of the season was investigations now underway at Darmstadt: (1) the development of a method for determining the power required for the disintegration of various types of pulp; (2) the development of a testing machine to measure the quality of formation in paper, and (3) research in connection with cockle

Coming Events

Tappi

Jan. 11—Empire State Section, Metropolitan District, Fraunces Tavern, New York, N. Y.

Jan. 11—Ohio Section, Manchester Hotel, Middletown, Ohio.

Jan. 11—Lake States Section, Conway Hotel, Appleton, Wis.

Jan. 14-15—Southeastern Section, Francis Marion Hotel, Charleston, S. C.

Jan. 27—Delaware Valley Section, Engineers' Club, Philadelphia.

Feb. 2—Empire State Section, Western District, J. W. Clement Co., Buffalo, N. Y.

Feb. 21-24—Annual Meeting, Commodore Hotel, New York, N. Y.

American Pulp & Paper Mill Superintendents Association

Jan. 13—Michigan Division, Hotel Harris, Kalamazoo.

Jan. 27—Miami Valley Division, Middletown, Ohio.

Other meetings

Jan. 24-27—Plant Maintenance & Engineering Conference and Exhibition, International Amphitheater, Chicago.

Jan. 24-28—International Heating & Ventilating Exposition, Commercial Museum and Convention Hall, Philadelphia.

Jan. 26-28—Canadian Pulp & Paper Association, Technical Section, Mount Royal Hotel, Montreal, Que.

Feb. 21-24—American Paper & Pulp Association, Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

NAMES *in the* NEWS

Eddy Executives Named

At a recent meeting of the board of directors of Eddy Paper Co. Ltd., W. A. Robertson was appointed vice chairman of the board and chairman of the executive committee of the firm and its operating subsidiary, the E. B. Eddy Co. He was formerly president and managing director of both companies.

R. A. Irwin has been named to succeed Mr. Robertson. He is also president and general manager of Somerville Ltd. In another appointment, W. D. Moffatt was made vice president of both Eddy organizations. He will continue as director of sales for E. B. Eddy.

Rayonier Appoints Zepp

Ralph V. Zepp has been promoted to the post of resident engineer of the Jesup (Ga.) Div. of Rayonier Inc. He replaces William C. Rindsland, who resigned recently.

Formerly assistant resident engineer of the Georgia operation, Mr. Zepp was at one time project engineer with Minnesota & Ontario Paper Co. at International Falls, Minn.

In another Rayonier appointment, Joseph A. Krauth has been named resident engineer at the Grays Harbor (Wash.) Div. Formerly associated with Westinghouse Electric Corp., he joined Rayonier in 1951 at the Shelton Div. as assistant resident engineer.

Mr. Krauth replaces L. R. Wood, who has transferred to the Central Engineering Div. in Hoquiam. His work there will include special assignments for all the firm's divisions.

Advertising, Public Relations Reassignments at Nepco Announced

Three men have been given new positions in the advertising and public relations fields at Nekoosa-Edwards Paper Co., Port Edwards, Wis.

Tad R. Meyer, formerly advertising and public relations manager, has been named to the newly created position of director of advertising and sales promotion. He has been with the firm since 1937 and advertising manager since 1946.

HONORED FOR 50 years' service with Crocker-McElwain Co. of Holyoke, Mass., Philip W. Gridley (center) receives the best wishes of his associates at a banquet marking the occasion. Mr. Gridley, who has been assistant treasurer of the firm since 1911, was the first employee to be hired by C. A. Crocker and R. F. McElwain when the company was organized in 1904. Those in the picture in addition to Mr. Gridley are (l to r) R. H. Morrill, president; Edson S. Dunbar, sales manager; Mrs. Gridley, and E. C. Tucker, vice president

Keith Roberts, formerly assistant advertising manager, has been made public relations manager and will be in charge of community and public relations programs and publicity. Mr. Roberts, who joined Nepco in 1949 and was made assistant advertising manager in 1953, will continue to edit the firm's monthly magazine, *Nepco News*.

Named assistant advertising manager was Kendall Green, an advertising staff member since 1951.

T. R. Meyer (above l.)

Keith Roberts (above r.)

K. W. Green (right)

League Names Two

The addition of two research scientists to the staff of the Sulphite Pulp Manufacturers Research League was announced recently at Appleton, Wis. They are Dr. Philip Luner and Duane K. Higgins.

Dr. Luner was formerly with the Pulp and Paper Research Institute of Canada, where he was a research chemist. At Appleton he will deal with the physical chemical evaluation of sulfite liquor components.

Mr. Higgins joins the League as an analytical chemist. He was previously associated with Carter Ink Co.

Abbott Named President of Alliance Paper Mills

D. S. Abbott has been elected president of Alliance Paper Mills Ltd. and its subsidiary, Don Valley Paper Co. Ltd. He was also named to the board of directors of Howard Smith Paper Mills Ltd.

Mr. Abbott joined the staff of Howard Smith in 1944 as manager of the Plastics Div., now Arborite Co. Ltd., of which he was elected president in 1953. He will continue to hold this office.

George E. Wilson, formerly manager of the Don Valley and Georgetown divisions of Alliance, has been appointed manager of operations for Alliance Paper and Don Valley Paper. He joined the Howard Smith staff at Cornwall in 1928 and was later made superintendent of Don Valley Paper.

R. D. Merrill has been promoted to the new position of director of engineering for Stone Container Corp. He was formerly head of methods and design engineering at the Chicago plant.

Irvin A. Chase, 65, retired recently after 32 years' service at the Brewer, Maine, mill of Eastern Corp. Most of his work was in the pulp mill.

George W. Mead II has been appointed director of product development for Consolidated Water Power

& Paper Co. at Wisconsin Rapids, Wis. He was formerly chief of the Pulping Research Group.

Fraser Announces Changes in Technical Department

Aubrey Crabtree, president of Fraser Companies Ltd., has announced personnel changes in the technical department of the firm and its subsidiaries, Fraser Paper Ltd. and Restigouche Co. Ltd.

W. A. Ketchen has been named to the newly created position of technical director of the Edmundston, N. B. company. Succeeding him as chief

W. A. Ketchen

Dr. A. J. Corey

Karl Patrick

W. H. Birchard

chemist is Dr. A. J. Corey, formerly assistant chief chemist.

Karl Patrick assumes the post vacated by Dr. Corey, while W. H. Birchard becomes chemical engineer.

A native of Montreal and a graduate of McGill University, Mr. Ketchen has been with Fraser more than a quarter of a century, starting as a chemist with Fraser Paper Ltd. in Madawaska, Maine. He was named chief chemist of the company and its subsidiaries in 1936.

Dr. Corey, a graduate of McGill University, joined the Restigouche firm in 1936 and was later made director of research. In 1946 he became assistant chief chemist of Fraser and its subsidiaries.

Rudolph L. Tressner, formerly superintendent of the Toledo, Ohio, plant, has been named to the newly created post of manufacturing manager for Ottawa River Paper Co. He will be in charge of manufacturing activities at both Toledo and Flint,

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Technical Service in connection with your specific problems is available upon request.

CLINTON FOODS INC.

CORN PROCESSING DIVISION

CLINTON, IOWA

Names in the News . . .

Mich. He is being succeeded at Toledo by **Howard E. Lavender,** former assistant superintendent.

Lucius M. Foster has been retired after 51 years of continuous service with Case Bros. Inc. of Manchester, Conn. For the past 20 years he has been traffic manager at the No. 1 mill.

Gardner Board & Carton Announces Reorganization

A new top management organization for Gardner Board & Carton Co. has been reported by the firm's board of directors.

E. T. Gardner, president since 1917 and one of the founders, becomes chairman of the board. In this capacity he will continue to be active in the company and will serve as chief executive officer.

New president is Colin Gardner, who was formerly vice president in charge of sales. His new responsibilities will include active executive direction of all company activities.

E. T. Gardner succeeds Wellmore B. Turner of Dayton, Ohio, who has been board chairman since 1946. He is resigning because of other business activities but will remain as Gardner's chief legal counsel and business advisor. New executive vice president is E. T. Gardner, Jr., formerly vice president of finance.

Colin Gardner III, former vice president for operations, becomes vice president and general manager. He will manage all company operations, under the direction of the president and executive vice president.

Other promotions and appointments announced at the same time include:

Floyd Lockard, formerly controller, vice president for finance; Ames Gardner, formerly general manager of carton sales, vice president in charge of carton sales; William E. Gardner, formerly assistant director of board sales, vice president for board sales; Richard L. Siegel, formerly director of industrial and public relations, vice president of industrial and public relations; Bruce Martin, former manager of the Filer City (Mich.) Div. of American Box Board Co., vice president in charge of manufacturing, and David R. Arnold, formerly assistant controller, controller.

Robert B. Gardner and Walter E. Sooy remain as senior vice presidents.

Ralph B. Brenan, managing director of G. E. Barbour Co. Ltd. in St. Johns, N. B., has been elected a director of Fraser Companies Ltd. He fills the unexpired term of **George E. Barbour,** who resigned for personal reasons.

R. B. Brenan

F. C. Stocker

Fred C. Stocker has been named plant superintendent of the Mansfield (Ohio) Div. of Stone Container Corp. He has been associated with Hankins Container Corp., Atlanta Paper Co. and Ohio Boxboard Co.

St. Regis Paper Co. has announced that effective January 1 **Paul M. Dunn** will become technical director of forestry. He is presently dean of forestry at Oregon State College and succeeds A. B. Recknagel, who retired last year.

P. M. Dunn

F. E. Newton

Frank E. Newton, formerly manager at the Ohio Corrugated Box Div., has been named manager of the Pennsylvania Corrugated Box Div. of Robert Gair Co. Inc. He has been with the firm 24 years.

Hinde & Dauch Paper Co. of Canada Ltd. has appointed three new directors to its board: **D. L. Luke Jr.,** president of West Virginia Pulp & Paper Co.; **J. D. Cowan,** executive vice president of West

STAINLESS STEEL or MONEL
HEAD BOXES

Where top quality is required in both material and workmanship. The answer is in Overly's Fabricated Head Boxes. Not just built but engineered to meet your specific requirements. Illustrated are two of the many units which typify our quality.

FABRICATORS OF THE FOLLOWING:

- COPPER, LEAD, STAINLESS
- STEEL, MONEL, STEEL, BRASS,
- ALUMINUM, AIR MOVING, AND INDUSTRIAL VENTILATION
- PAPER INDUSTRY DRYING SYSTEMS, - VAPOR ABSORPTION,
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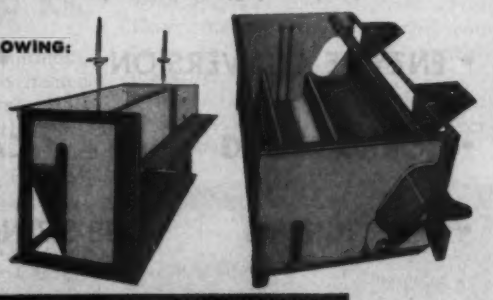
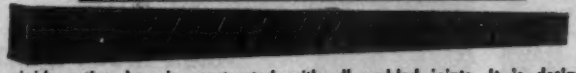
- INDUSTRIAL VENTILATING UNITS.



STAINLESS STEEL or MONEL SUCTION BOXES



This rigid suction box is constructed with all welded joints. It is designed to eliminate bowing or sagging giving maximum cover support. It has good depth and is easily cleaned. All supports inside of box are tapered to prevent stock build-up. Can be machined for any type of cover mounting. Furnished either in stainless steel or monel.

OTHER PRODUCTS:
SIZE PRESS TROUGHS · SEAMLESS TUBES · PUMP PIPES
MEASURING TANKS · VEE GRIP FLANGES · PANS
STOCK TROUGHS · SAVE-ALL PANS

STAINLESS STEEL or MONEL
WELDED PIPE and TUBING

OVERLY'S INC.
NEENAH, WISCONSIN
FABRICATORS

Virginia, and **D. L. Luke III**, vice president of West Virginia.

T. N. Bland, president of Fibreboard Products Inc., has been elected president of the National Paperboard Association. He is the first member from the Pacific Coast to hold the office since the founding of the group in 1934.

T. N. Bland

Alexander Calder Jr.

Alexander Calder Jr., executive vice president and general manager of Union Bag & Paper Corp., has been elected to the board of the National Industrial Conference Board. The Board is an independent and non-profit institution for business and industrial fact-finding through scientific research.

Frederick W. Sudhoff has been named to the industrial engineering department of the Gardner Board & Carton Co. of Middletown, Ohio. He was formerly associated with Philip Carey Mfg. Co. of Lockland.

F. W. Sudhoff

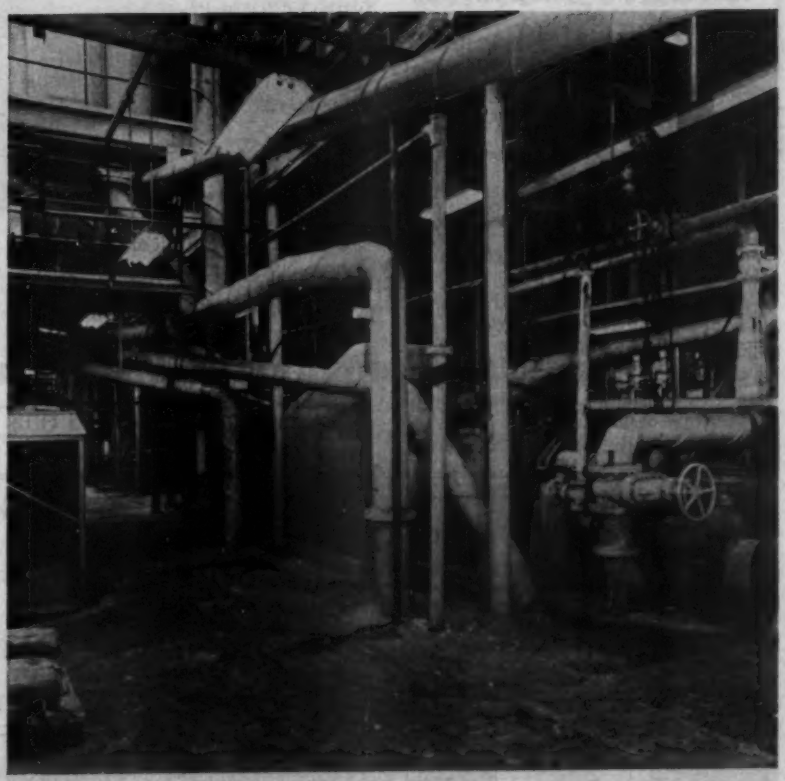
T. B. McCabe

Thomas B. McCabe, president of Scott Paper Co., has been selected to receive the Gold Medal of Merit award that is given annually by the Wharton School Alumni Society of the University of Pennsylvania. The presentation is made in recognition of outstanding business leadership.

Shawano Paper Mills of Shawano, Wis., has reported the following appointments: **Jesse H. Trask**, vice president in charge of production; **R. L. Leaf Jr.**, vice president in charge of development, and D. W. Loeffler, treasurer.

NAYLOR PIPE

Gets Around



Here's a good example of how Naylor pipe gets around in paper mills. Its light weight, ease of handling and installation, extra strength and safety have made this distinctive pipe a stand-by for dependable service in mills all over the country. Now available in stainless steels in addition to carbon steel. Write for Bulletins No. 507 and No. 525.

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NECROLOGY

C. J. Thomas

C. J. Thomas, 70, for many years general superintendent for Charmin Paper Mills Inc., died November 5 at his home in Green Bay, Wis.

Following his association with Charmin, Mr. Thomas was on the staff of Marinette Paper & Pulp Co. In 1935 he went to Cuba to start a tissue mill and in 1940 joined the staff of Falls Paper & Power Co. He retired in 1945 because of ill health.

Sidney L. Wellhouse

Sidney L. Wellhouse, 70, president of National Paper Co., died in Atlanta November 2 after a two-month illness.

A prominent leader in the paper and box industry, Mr. Wellhouse was a former president of the National Paper Trade Association and was a director of the organization at the time of his death. He was also a member of the advisory committee of Gummed Products Co. of Troy, Ohio, and a director of the National Folding Box Association.

During World War II he was a member of the Coarse Paper Merchants Industry Advisory Committee of the Office of Price Administration and of the Industry Advisory Committee of the Folding Box and Distributing Trade for the War Production Board.

Howard W. Anderson, 48, nursery manager for Nekoosa-Edwards Paper Co. in Port Edwards, Wis., died recently at his Wisconsin Rapids home. He was a past president of the Wisconsin Nurserymens Association.

William W. Moore, 57, sales manager for the general machinery division of Allis-Chalmers Mfg. Co., died recently in Toledo, Ohio.

Harry A. Johnson, 59, died October 20 at his home in Neenah, Wis. He was a vice president of Edgewater Paper Co. and had charge of production. He had previously served 24 years as mill superintendent.

W. W. Campbell Jr.

William W. Campbell Jr., vice president in charge of sales for Lockport Felt Co., was killed in an airplane accident near Middletown, Conn., October 29. The craft, a Lockport Felt plane, also carried Mrs. Campbell and the pilot to their deaths.

W. W. Campbell Jr.
Lockport Felt Co.

Mr. Campbell joined the firm in 1934 and with the exception of service with the Seabees during World War II has been in sales work since that time. He was elected a member of the board of directors in 1946, appointed sales manager in 1952 and vice president in charge of sales in April 1953.

Robert B. Wolf

Robert B. Wolf former manager of the Pulp Div. of Weyerhaeuser Timber Co., died November 11 in Danbury, Conn. The well known paper industry executive and engineer was 77.

From 1906 to 1917 Mr. Wolf was manager of Burgess Sulphite Fiber Co. in Berlin, N. H. In 1917 he became manager of Spanish River Pulp & Paper Co. in Ontario and in 1919 founded Pulp Bleaching Corp. in New York, N. Y. He was its president until 1930, when he became associated with Weyerhaeuser.

E. W. Elsworth

Edward W. Elsworth, 78, at one time secretary and general manager of Norwood Paper Co. and later a prominent pulpwood dealer in northern New York, died recently in Watertown.

Mr. Elsworth was with Norwood for about seven years, later entering the field of buying and selling pulpwood. For a time he was associated with Frank A. Summerville in Summerville-Elsworth Co.

Arthur Morrison, from 1922 to 1937 manager of Green Bay Paper Box Co., died at his Green Bay, Wis. home recently.

William R. Lawrence, a sales engineer for Oliver United Filters Inc., died at his home in Riverdale, N. Y.

RES-LIN wire saver
SUCTION BOX COVERS
are
PROVEN by TEST

PROVEN BY TEST, this RES-LIN Suction Box Cover is establishing a new record for longer life and even wearing. It is engineered to meet the requirements of specific production problems of each particular paper machine.

10 Reasons Why You Should Use RESLIN

1. Even distribution of fabric assures EVEN WEARING.
2. Ends of threads contact wire, assuring uniform surface to wire.
3. Increased wire life.
4. Many years of trouble-free service.
5. Resurfacing reduced to a minimum.
6. Expansion and contraction is reduced to a minimum.
7. Reslin can supply a greater open area without sacrificing strength.
8. Requires no wet storage or care when machine is down.
9. Easily installed.
10. No other can offer as even-wearing and wax-like surface as Reslin.

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knife grinders

for your

CHIPPER — BARKER — HOG KNIVES — PAPER KNIVES

MODEL GK

NEW MODEL SK-24 slitter knife grinder

FOR TOP — BOTTOM SLITTERS
CAPACITY 3" TO 24" DIAMETER
SEMI OR FULL AUTOMATIC
FINEST IN ACCURACY AND FINISH

FULLY AUTOMATIC TABLE DRIVES HYDRAULIC OR ELECTRIC

SPEEDS: 10' to 80' per min. (faster if required)
CAPACITY: 32" to 184"

OTHER MODELS:

DK — MEDIUM DUTY 32" to 108" capacity

AK — EXTRA HEAVY DUTY 84" to 360" capacity

HANCHETT MANUFACTURING COMPANY

World's Largest Manufacturer of Knife Grinding and Saw Sharpening Machinery

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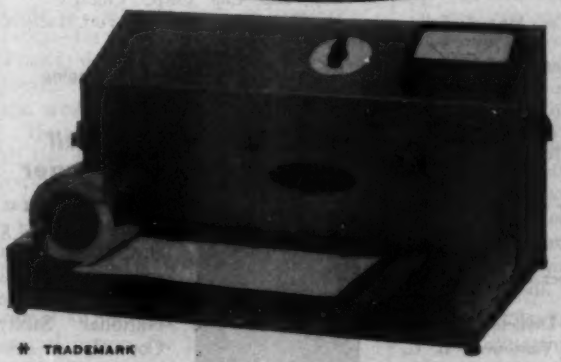
HANCHETT GRINDERS

PAPER MANUFACTURERS AND PRINTERS RECOMMEND THE

Vanceometer*

Oil Absorption Tester



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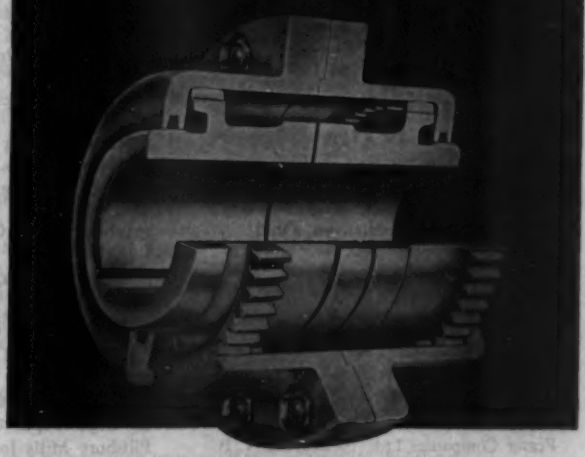
- TO OBTAIN A NUMERICAL RATING OF ABSORPTION INTO PAPER AND PAPER BOARD.
- TO TEST PLAIN OR COLORED STOCK.
- TO GET SURE RESULTS QUICKLY

HILLSIDE LABORATORY

25 HOWARD AVENUE HILLSIDE, ILLINOIS

POOLE



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FLEXIBLE COUPLINGS

POOLE FOUNDRY & MACHINE COMPANY WOODBERRY, BALTIMORE, MD.

SAFETY NEWS

PI Safety Contest Shows 15% Rate Reduction for First Nine Months

A RATE REDUCTION of 15 per cent from the same period of last year has been recorded during the first nine months of 1954 by the 503 participants in the Paper Industry Safety Contest sponsored by the National Safety Council. According to the NSC, 83 perfect records were reported at the three-quarter mark.

The September frequency for all divisions was 11.59, while that for the first nine months was 10.36. In the pulp and paper division the nine-month rate was 6.93, down 12 per cent from 1953. In paper converting the rate was 8.09, down 22 per cent; while that for pulpwood logging was 100.06 (no comparison is possible here because this division was not in existence a year ago).

From the eligible mills in Division I the board of judges will select the mill with the most outstanding record. That mill will be awarded the grand prize, the Edward Benton Fritz Memorial Trophy, presented annually at the National Safety Congress by THE PAPER INDUSTRY.

Perfect scores recorded during the first nine months were as follows:

Division I—Pulp and Paper Mills

Group A

None

Group B

Crossett Paper Mills, Crossett, Ark.
Sorg Paper Co., Middletown, Ohio

Group C

Manitoba Paper Co. Ltd. (a subsidiary of Abitibi Power & Paper Co. Ltd.), Pine Falls, Man.
Crystal Tissue Co., Middletown, Ohio
National Vulcanized Fibre Co., Yorklyn, Del.

Group D

Fraser Companies Ltd., Newcastle, N. B.
Price Bros. & Co. Ltd., Jonquiere, Que.
Riegel Paper Corp., Warren Mill, Riegelsville, N. J.
Certain-Teed Products Corp., East St. Louis, Ill.
National Container Corp., Big Island, Va.
Bartgis Bros. Co., Ilchester, Md.
Certain-Teed Products Corp., Savannah, Ga.
Container Corp. of America, Los Angeles
Johns-Manville Products Corp., Pittsburg, Cal.
U. S. Gypsum Co., Oakmont, Pa.
Allied Chemical & Dye Corp., Barrett Div., Elizabeth, N. J.
Central Fibre Products Co., Tama, Iowa
Coos Bay Pulp Corp., Empire, Ore.
Container Corp. of America, Chattanooga, Tenn.

Group E

Lloyd A. Fry Roofing Co., Portland, Ore.
Lloyd A. Fry Roofing Co., Compton, Cal.
Lloyd A. Fry Roofing Co., Brookville, Ind.
Lloyd A. Fry Roofing Co., Jacksonville, Fla.
Lloyd A. Fry Roofing Co., North Kansas City, Mo.
U. S. Gypsum Co., North Kansas City, Mo.
Riegel Paper Corp., Hughesville Mill, Riegelsville, N. J.
Lloyd A. Fry Roofing Co., Memphis, Tenn.
The Flintkote Co., Mt. Carmel, Ill.
Kimberly-Clark Corp. of Canada Ltd., Kapuskasing, Ont.
Volney Felt Mills, Fulton, N. Y.
Container Corp. of America, Wilmington, Del.
Johns-Manville Products Corp., Tilton, N. H.
Munroe Falls Paper Co., Munroe Falls, Ohio
American Writing Paper Corp., Mt. Tom Div., Holyoke, Mass.
The Logan-Long Co., Amalgamated Roofing Mills Div., Chicago.
Spaulding Fibre Co. Inc., Hayes Plant, Milton, N. H.

Division II—Paper Converting

Paper Bags

St. Regis Paper Co., Los Angeles
Thilmany Pulp & Paper Co., Kaukauna, Wis.
St. Regis Paper Co., Dryden, Ont.
St. Regis Paper Co., Vancouver, B. C.
Pillsbury Mills Inc., Wellsburg, W. Va.

Boxes and Cartons

Group A

Michigan Carton Co., Battle Creek, Mich.
General Foods Corp., Battle Creek, Mich.
Container Corp. of America, Chattanooga, Tenn.
Container Corp. of America, Medford, Mass.
Bartgis Bros. Co., Ilchester, Md.
Container Corp. of America, Rock Island, Ill.
Container Corp. of America, F & C Div., Manayunk, Philadelphia

Group B

Container Corp of America, Cleveland
Container Corp. of America, Seattle
Container Corp. of America, Valley Forge, Pa.
Gaylord Container Corp., Atlanta, Ga.
Container Corp. of America, Knoxville, Tenn.
Hoerner Boxes of Sand Springs Inc., Sand Springs, Okla.
Container Corp. of America, Baltimore
Gaylord Container Corp. St. Louis
National Container Corp. of Indiana, Aurora, Ind.
Container Corp. of America, Greensboro, N. C.
Hankins Container Co., Miamisburg, Ohio
Gaylord Container Corp., Beaver Falls, Pa.
Container Corp. of America, Lake Shore Plant, Chicago
Bay West Paper Co., Green Bay, Wis.
Gaylord Container Corp., San Antonio, Texas
Mott Carton & Paper Co., St. Louis
Hankins Container Co., Little Rock, Ark.

Roofing Paper

Ruberoid Co., Gloucester, N. J.
Lloyd A. Fry Roofing Co., Detroit
Lloyd A. Fry Roofing Co., Stroud, Okla.
Johns-Manville Products Corp., Los Angeles
Lloyd A. Fry Roofing Co., York, Pa.
Lloyd A. Fry Roofing Co., Robertson, Mo.
Lloyd A. Fry Roofing Co., San Leandro, Cal.

Insulation and Building Board

Abitibi Power & Paper Co. Ltd., Sturgeon Falls, Ont.

Specialties

Lily-Tulip Cup Corp., Augusta, Ga.
Scott Paper Co., Sandusky, Ohio
Lily-Tulip Cup Corp., Chicago
Mid-West Wax Paper Co., Fort Madison, Iowa

Division III—Pulpwood Logging

None

National Safety Council Names General Manager

Gen. G. C. Stewart
NSC General Mngr.

Maj. Gen. George Craig Stewart has been appointed general manager of the National Safety Council, a new post created to broaden the top-level administration of the organization.

General Stewart was to assume his new duties in November. Until his army retirement on October 31,

FOR THE FIRST time in history, the American Folding Paper Box Association has presented one firm two separate awards for reaching 1,000,000 man-hours without a lost-time accident in two separate plants. Colin Gardner (r), president of Gardner Board & Carton Co., received the awards from A. E. Murphy, executive director of the association. The Gardner operations that made the records were the carton plant at Middletown, Ohio, and the combined retail box and carton plants in Lockland

he was director of the Office of Military Assistance on the staff of the secretary of defense.

A native of Selma, Ala., the new general manager is a graduate of the United States Military Academy. He gained an army reputation as a transportation expert. General Stewart was in charge of transportation during the Oran landing in North Africa in World War II and successively became transportation chief for the North African theatre of operations, chief of southern lines of communication for the invasion of southern France, deputy chief for the European theater and chief of army forces in the western Pacific.

He served in Korea as commander of the Inchon base for the 1950 invasion landing and as assistant commander of the 2nd Infantry Division.

Safety Notes . . .

The Big Island, Va., mill of National Container Corp. has won special honors for its performance in accident-prevention. During a special ceremony recently Aubrey L. Taylor, plant manager, accepted an engraved plaque from M. W. Twilley, Philadelphia accident-prevention manager for Employers Mutuals of Wausau. The mill has operated since mid-August of 1953 with a perfect safety record.

SLITTING PRETTY at Transparent Paper Products Co., Ltd.

Askania Edge Position Controls Cut Payroll Costs 1/3—Increase Production 100%

"These Askania controls—they're magnifique!" says Mr. Claud Hebert, President of Transparent Paper Products Co., Ltd., Montreal, Canada.

"By installing Askania edge position controls on our two Beck slitting machines we have been able to cut slitter operation from 3 shifts to 2—and still double slitter production."

Here's what Askania controls did for Mr. Hebert's company:

ELIMINATED TRIM WASTE. It was formerly necessary to trim ¼ inch from both edges of each roll after slitting. Six months of operation with Askania controls produced no trim waste at all.

PERMITTED FASTER MACHINE SPEED. The slitters now run at 600 ft. per minute. Before adding Askania controls, they were run at 230 ft. per minute so the slitter operator could watch the web and adjust the roll by hand.

IMPROVED EDGE TOLERANCE. Precision tolerances at Transparent Paper Products Co., Ltd., are now better than 1/16 of an inch. Before installing Askania controls they used to vary as much as ½ inch.

* * *

NOTHING TOUCHES THE WEB BUT A BREATH OF AIR

A stream of low pressure air passes across the edge of the web to measure and transmit the signal.

If you have a web-guiding problem it will pay you to investigate the advantages of Askania controls. Write for Bulletin No. 161.

ASKANIA REGULATOR COMPANY

278 E. Ontario Street, Chicago, Illinois

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

PATENT REVIEWS

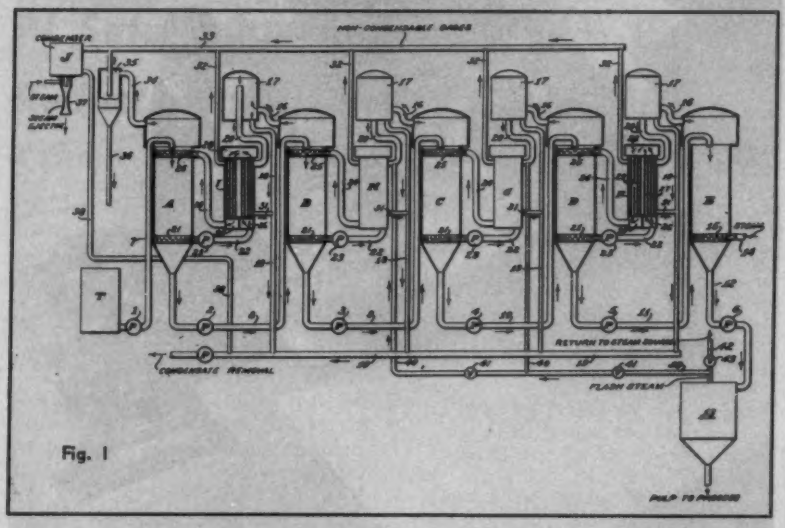


Fig. 1

MELVIN NORD*

Continuous digestion in the production of paper pulp

A continuous process for digesting fibrous materials such as wood chips, to produce improved pulp products is described by John W. Natwick in U.S. 2,675,311, issued April 13, 1954.

As shown in Fig. 1, the pulp passes continuously through a series of digesters A, B, C, D, and E. The wood chips are mixed with a chemical cooking liquor in tank T. The chips should be in a relatively fine state of attrition to permit efficient penetration of the liquor, and to facilitate pumping into digester A. Preferably, the chips have been fiberized by passage through an atrrition mill. The uniform small size of the chips processed in this way results in increased yields and better quality of pulps produced. The cooking liquor may be any of the commonly used treating liquors such as sulfite, soda, sulfate, or lime liquors. The wood chips and cooking liquor are transferred to the top of digester A. The pulp travels down through digester A by gravity, and is then pumped into digester B. The fibrous material is subsequently passed in similar manner through digesters C, D, and E. The completely digested pulp leaves the final digester E and is passed into tank 13 and then into suitable apparatus for subsequent conventional treatment, such as washing and evaporation.

The elevated temperatures and pressures required for the digestion process are provided initially by the direct injection of steam under pressure into the final digester E, by way of inlet pipe 14 which is connected to perforated ring 15 inside the digester. In this way uniform distribution of the steam through the digester contents is assured. Due to this direct injection of steam, the final digester is under the highest conditions of temperature and pressure present in the system.

After passing through and heating the digester contents, the remaining steam, which carries with it vaporized volatile materials such as turpentine and oil and non-condensable gases, such as hydrogen sulfide and sulfur dioxide, exits through outlet pipe 16 and passes into separator 17. Condensate drains into branch pipe 18, which is connected to condensate header 19. The remaining high temperature, high pressure vapors and gases then pass through pipe 20 into indirect heat exchanger F. Perforated ring 21 is positioned in the bottom portion of digester D in the path of the descending pulp. The perforations are of a size which permits inflow of the cooking liquor but prevents passage through it of solid materials. The cooking liquor which strains into the ring passes into pipe 22 and is forced by pump 23 into indirect heater F where it is heated to a relatively high temperature by the hot vapors and gases from digester E, and then returns to digester D by way of pipe 24, which connects with perforated ring 25 positioned in the upper portion of the digester. Uncondensed gases which largely consist of hydrogen sulfide, sulfur dioxide and air, leave via branch pipe 32 which connects with header 33.

The heated cooking liquor percolates through the fibrous material in digester D, thus maintaining the contents at an elevated temperature. The cooking liquor vaporizes to form steam. The vapors and gases generated in this way pass out of the digester by way of separator 17 into indirect heat exchanger G which heats the cooking liquor from digester C. The temperature and pressure in digester D are lower than those maintained in digester E, due to absorption of heat units by the pulp and by the cooking liquor in the vaporization process.

(Turn to Page 947)

*Patent attorney, 17600 Pinehurst, Detroit

Other Patents of Interest to the Paper Industry

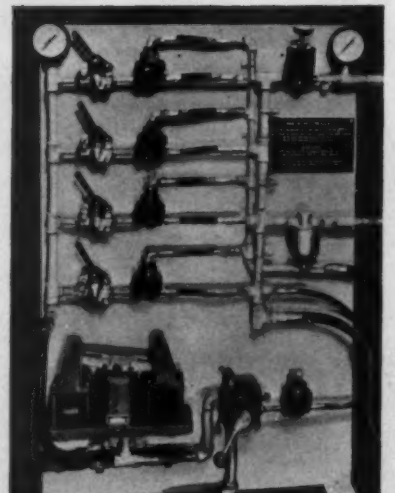
Subject	Inventor or Assignee	Patent No.	Date
Machine for reducing and treating fibrous papermaking materials	Anton J. Haug	2,674,162	4/6/54
Container	Lewin-Mathes Co.	2,674,372	"
valve bag packing unit	St. Regis Paper Co.	2,674,396	"
Shipping carton	Bohr-Manning Corp.	2,674,400	"
Machine for treating wood pulp	Curlator Corp.	2,674,928	4/13/54
Machine for preparing paper container blanks	National Paper Bottle Co., Inc.	2,674,929	"
Machine for manufacturing binding tapes	Sackner Products Inc.	2,675,052	"
Endless band pressing machine for manufacturing upholstered paper	Ludwig Clemens	2,675,053	"
Bottom structure for reinforced carrier receptacles	American Box Board Co.	2,675,156	"
Retractable handle bottle carrier	Container Corp. of America et al	2,675,157	"
Reinforced partitioned carrier	The Gardner Board & Carton Co.	2,675,158	"
Egg container	George Reiner	2,675,159	"
Covered carton	Sutherland Paper Co.	2,675,160-1& 2,675,163-4	"
Cardboard basket	J. Dring Co.	2,675,162	"
Alternative opening carton	Container Corp. of America	2,675,165	"
Paperboard container	Container Corp. of America	2,675,166	"
Bottle case partition	Edwin F. Doline et al	2,675,167	"
Combined cover and handle structure for paperboard boxes	The Hindle & Dauch Paper Co.	2,675,168	"
Bottle carrier	Sutherland Paper Co.	2,675,264	"
Bottle carrier	Dacam Corp.	2,675,956	4/20/54
Method of coating paper	Brightwater Paper Co.	2,676,110	"
Mounting for smoothing press rolls	Downingtown Mfg. Co.	2,676,387	4/27/54
Apparatus for coating paper	The Champion Paper & Fibre Co.	2,676,563	"
Cutting apparatus for paper bag machinery	H. O. Weber & Co. Inc.	2,676,657	"
Collapsible paperboard package and carrier	Frankenberg Bros. Inc.	2,676,731	"
Feeder carton	The Lawrence Paper Co.	2,676,746	"
Folded box	Werner Bahlsen		

Another Example of Camachine Engineering For Better Rolls at Lower Cost

New Model 2C-PT Pneumatic Tension

more sensitive...

more selective...



The primary control valve provides a consistently accurate ratio of brake pressure to dancer roll position, varying from zero to an adjustable top limit. The output of the primary valve is multiplied or divided by selective connection to one of the four secondary regulators, providing tension ranges to suit different grades of stock.

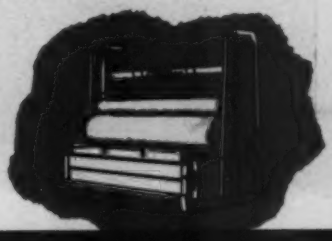
more accurate tension!

ON ACTUAL INSTALLATION TESTS the pneumatically operated 2C-PT tension has proved more sensitive and accurate assuring optimum control for rewound roll quality.

FOR EXAMPLE: running light tablet stock from a mill roll 40" in diameter and 120" wide at 3000 fpm, the new 2C-PT maintained tension at ½ pound per inch. Changing over to heavier book stock, under the same conditions, the 2C-PT automatically corrected and maintained tension at 1 pound per inch. To accommodate this change in stock only one simple adjustment was required—an increase in dancer roll diaphragm pressure. Still heavier stocks were handled by similar pressure adjustment together with the selection of correct tension among the eight ranges available.

IMPROVED DESIGN: the low-inertia, low-friction dancer roll provides automatic slack take-up every half revolution when running eccentric parent rolls, and its cushioning arrangement greatly reduces the danger of snap-offs. The 2C-PT has provisions for varying the tension during a run, and will automatically retard the mill roll with the winder when slowing down for a splice, thereby avoiding off-set. The threading of the web in the 2C-PT, using a three roll wrap (two fixed idlers and a dancer roll), dampens sheet flutter due to windage, out-of-round parent rolls, or soft sheet edges . . . providing optimum web control for clean-cut, straight-sided rewound rolls.

This new Camachine engineering development can be adapted to serve most mill-type winders in use today. Write for information.



Don't wind up with less than a Camachine®

CAMERON MACHINE COMPANY • 61 Poplar Street • Brooklyn 1, N. Y.

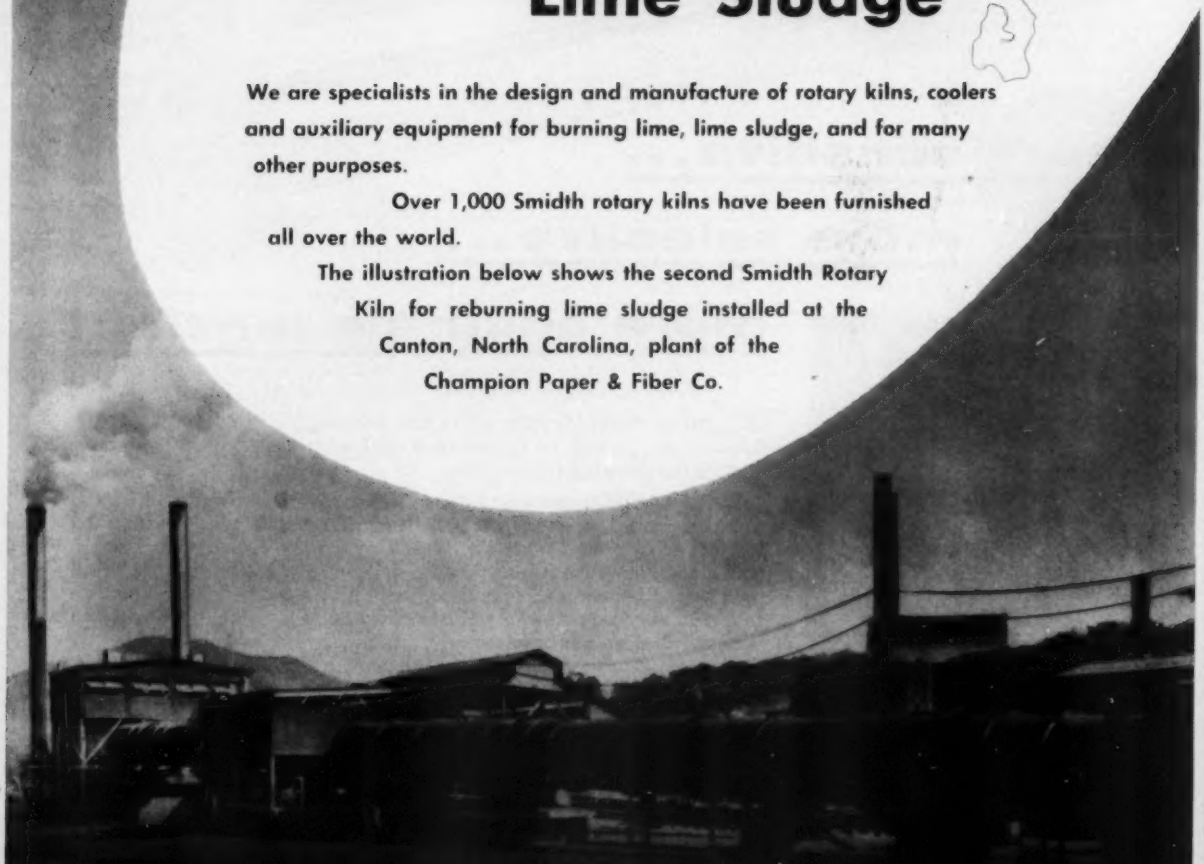
SMIDTH Rotary Kilns

For reburning Lime Sludge

We are specialists in the design and manufacture of rotary kilns, coolers and auxiliary equipment for burning lime, lime sludge, and for many other purposes.

Over 1,000 Smidth rotary kilns have been furnished all over the world.

The illustration below shows the second Smidth Rotary Kiln for reburning lime sludge installed at the Canton, North Carolina, plant of the Champion Paper & Fiber Co.



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Similarly, the contents of digesters C, B and A are heated by circulation of the cooking liquor through heaters G, H and I, respectively, and the heating medium for each of these heaters is derived from the vapors and gases generated in the subsequent digester. The pressures and temperatures decrease progressively towards the forward part of the system.

The vapors and gases from digester A pass through pipe 34 into separator 35. Condensate from the separator passes by way of outlet pipe 36 into condensate header 19. The remaining vapors and non-condensable gases pass into an efficient condenser J of any suitable type, preferably a surface condenser equipped with a suitable ejector 37, where the water, vapor, and volatiles, such as turpentine and oils, are substantially entirely condensed into liquids which proceed to condensate header 19 by way of pipe 38. Header 33 which carries the non-condensable gases from the various heat exchangers, empties into condenser J. All of the non-condensable gases, including those from digester A, are then removed by ejector 37.

Flash steam which leaves the system with the completely digested pulp from digester E may be returned to the system at advantageous points. For example, it may be piped into either heater H or G by way of conduit 39, depending on the temperature and pressure conditions desired in these portions of the system. If conditions in the system do not require the injection of steam at any point other than digester E, the steam leaving with the pulp may be recovered by returning it to the steam generator by way of pipe 42. Condensate removed via header 19 may be treated to recover turpentine, oils and the like.

The cooking rate may be varied by controlling the temperature and pressure of the control medium at the point of admission, the action of the terminal condenser and ejector and the control temperature of the cooking liquor. When these factors are set, the intermediate stages of the system automatically come into balance to provide a uniform progression throughout the system. The cooking rate may also be regulated by varying the rate of flow of the chips and cooking liquor through the system.

Since there is no over-cooking of any of the material, there is no weakening or disintegration of any of the fibers. The thorough impregnation of the material and subsequent uniform digestion eliminates the knots and screenings which are usually present in pulp and results in a greater yields per pound of wood chips than is generally obtained. The removal of soap-forming materials and volatiles such as turpentine, oils, and the like, in the course of the process, facilitates their economical recovery and results in a highly purified pulp with improved physical properties. The removal of soap-forming materials is particularly advantageous, since it eliminates the severe foaming which generally makes the subsequent washing of the pulp very difficult. The process is highly economical with respect to the utilization of steam and digesting liquor. The heat units, which are initially supplied by the direct injection of steam into the last digester, are relatively completely utilized by the interrelated system of digesters and indirect heat exchangers. The process is also economical with respect to the amount of man power required.

Distillation of tall oil

U.S. 2,674,570, issued April 6, 1954 to Ralph H. Potts and assigned to Armour & Co., relates to a process for treating tall oil to prepare valuable products therefrom.

Tall oil is a dark colored liquid by-product of the paper industry. It is obtained from the "black liquor" residue of pulp wood in the manufacture of paper. It is available commercially in enormous quantities, but due to its generally objectionable character its use in industry has been very limited and when used it has often been quite unsatisfactory.

The process is shown in Fig. 2. Crude tall oil is fed through line 10 into a heat exchanger 11 in which the oil is heated and from which it is discharged through line 12 into a tower 13. This tower contains a series of vertically spaced trays 14, each of which carries liquid material. Vapors are withdrawn under vacuum at the top of the tower through line 15, are condensed at 16 and a portion of the condensate, 1 to 6 per cent of the tall oil feed, is withdrawn through line 17 as the unsaponifiable product. The remainder, amounting to 4 or 5 times the amount of the unsaponifiable product, is returned through line 18 to the top of the tower as reflux liquid. Steam is introduced into the lower portion of the tower through line 19, and the tall oil practically free of unsaponifiable material is withdrawn at the bottom through line 20 and introduced into tower 21.

Tower 21 contains a number of trays which contain liquid acids. In the lower portion of tower 21 is a heater 23 em-

Patent Reviews . . .

ploying heat exchanging fluid, and line 24 is provided for introducing steam into the bottom of this tower. Vaporous fatty acids including further unsaponifiable matter are withdrawn through the top of the tower through line 25, are condensed at 26, and a portion of the condensate is returned to the tower through line 27. Usually the amount returned as reflux is about 10 to 20 times the amount which is withdrawn through line 28 as overhead by-product. The main fatty acid product is withdrawn at point 36 which as shown on the drawing is four trays down from the top of the series, and the product is delivered by line 37 to storage or to other processes. The rosin acid fraction is withdrawn from the bottom of the tower through line 29.

This rosin acid fraction is introduced into the flash chamber 30 in which the volatile material is converted to a vapor. This chamber is maintained under vacuum by means of the withdrawal of vapor through line 31. The flash chamber is maintained at the same pressure as at the top of tower 21 (preferably between 3 and 5 mm. of mercury). The flash chamber is equipped with a coil 33 for adding heat to the liquid material in this chamber. As the pressure in the flash chamber is lower than the lower portion of the tower 21 (due to the pressure differential between the top and bottom of the tower) the material passing into the flash chamber may contain sufficient heat without any being added to vaporize resin acids contained in it. Some heat may be desirable, however, for supplying the latent heat of vaporization. The temperature in the flash chamber is maintained below the temperature in the tower 21. The condensate from condenser 32 may be withdrawn through line 34 as the resin acid product, and the pitch or non-volatile matter may be withdrawn through line 35 from the bottom of the flash chamber.

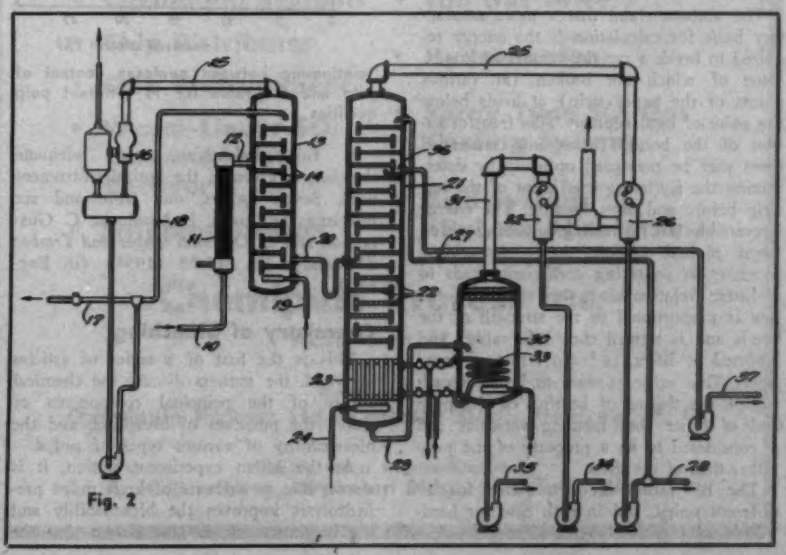


Fig. 2

FOREIGN ABSTRACTS

Hardwood pulps by mild treatment with caustic soda

Birch, hornbeam, basswood, aspen and oak chips are treated for four hours at about 15-20° C. with caustic soda solutions, using about one part of NaOH to ten parts of wood, and a liquor to wood ratio of 4:1. This treatment is followed by grinding ½ hour and treating in a Lamort disintegrator, the final beating being carried out in a Lampén mill. With the first four woods listed above, the hydration reaches 53 to 70° Schopper-Riegler, but the oak and beechwoods are neither pulped nor hydrated satisfactorily by the process. The yields of the other woods range from 70-85 per cent.

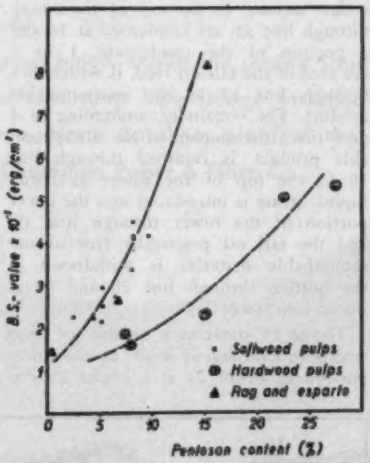
When, instead of steeping at room temperature, the alkaline digestions are carried out at 60-90°, the resulting pulps show some improvement in tear resistance. Birch and hornbeam pulps show the best strength properties, and the author believes that 10-25 per cent of these pulps might be added to furnishes used in board manufacture, especially if the digestion temperatures are above 60°. J. Vilars. *Chimie et Industries*, 72, 67-8 (1954) (in French).

Strength of bonding in paper

A preliminary paper outlined the general techniques (cf. *Paper and Timber* [Finland]. 34, 47 [1952]), which are amplified in the present article. A critical review is given on the literature devoted to fiber-to-fiber bonding, and the conclusion is reached that neither the breaking length nor the "bonded area" should be used in calculating the strength of bonding.

The authors claim that a more satisfactory basis for calculation is the energy required to break a certain number of bonds, some of which are broken (at various points of the paper strip) at loads below the point of total rupture. This transformation of the bonded areas into unbonded areas may be measured optically by determining the scattering coefficient of the test strip before and after loading. The energy irreversibly lost in loading-deloading cycles, when plotted against the corresponding increases in scattering coefficient, leads to a linear relationship; the slope of the line is proportional to the strength of the bonds and is termed the "B.S. value" and reported as BS x 10^{-4} (in terms of ergs/cm^2). This value appears to be independent of the degree of beating of the pulp and of other sheet-forming variables and is considered to be a property of the pulp rather than of the sheet.

The BS values are determined for 19 different pulps, and in each case for hardwood and (separately) for softwood pulps, there appears to be a rough correlation between the pentosan content and the BS values. However, for a given pentosan content, the softwood pulps always show higher BS values than the hardwood pulps. For example, an unbleached spruce sulfite pulp which contains 5.3 per cent pentosans gives a BS x 10^{-4} of 2.94, whereas an unbleached birch sulfite pulp with 15.7 per cent pentosans gives a value of 2.34. A bleached birch pulp containing 8 per cent pentosans shows a BS value of only 1.6, while a bleached pine pulp with 8.1 per cent pentosans shows a BS value of 3.34. A single sample of esparto pulp gives the highest BS value of 8.2; the lowest value (1.47) is given by a cotton (rag) pulp with 0.4 per cent pentosans. The relationship between BS and pentosans of all the pulps studied is shown in the accompanying figure.



Relationship between pentosan content of pulp and B.S.-value for 19 different pulp qualities

A full description, with adequate sketches, is given of the optical instrument used. Seven figures, one table and six references are given. L. Nordman, C. Gustafsson and G. Olofsson. *Paper and Timber* (Finland), 36, 315-20 (1954) (in English).

Chemistry of bleaching

This is the first of a series of articles in which the authors discuss the chemical nature of the principal components of wood, the purposes of bleaching, and the bleachability of various types of pulps.

At the Milan experiment station, it is shown that in the case of kraft pulps prehydrolysis improves the bleachability and the brightness. It is also shown that the correlation between permanganate number and chlorine absorption does not always follow an ideal curve. Not only can lignin condensation be obviated during digestion, but (due to prehydrolysis) the lignin becomes more susceptible to attack by the bleaching agents. This greater reactivity of the lignin is ascribed to the rupture of bonds between the lignin and the carbohydrates of the wood.

The ease of destruction of colored compounds in sulfite pulps by such agents as hypochlorites and the difficulty of their removal in kraft pulp bleaching is discussed. In the latter, the authors point to the formation of sulfur derivatives of tannins and partially degraded lignin which resist bleaching action; and, as a result, any immediate bleaching with hypochlorite is sluggish. On the other hand, when sulfate pulps are first treated with chlorine and alkali, the subsequent hypochlorite treatment gives a rapid increase in brightness. Fifty references are given. Domenico Borruso and Giogio Ceragioli. *Industria carta* (Milan), 8, No. 2, 11-16 (1954) (in Italian); English abridgement in *Tech. Bull. Tech. Section, Brit. Paper and Board Maker's Assoc.*, 31, No. 3, 92-6 (1954); through *B.I.P.C.*, 24, 937 (1954).

Microorganisms retained by old library books and paper currency

Worn out library books that have been in circulation at least 20 years (some of them for a quarter century) and which have passed through the hands, in some cases, of 175 readers show very low bacterial counts (usually between 2 and 34 bacteria in 10 sq. cm.). Apparently, there is no correlation between the number of germs and the age or wear of the books and the greatest number of bacteria as found in books that have been in recent circulation.

Among the organisms that are isolated and identified are resistant apathogenic spore formers, *sarcinae* and *white staphylococci*. In isolated cases, *yellow staphylococci, B. coli,* and *streptococci* (found normally in the human mouth) are also identified. Within the scope of the study, no dangerous pathogenic organisms are isolated (but no search is made for tubercle bacilli).

Similar studies are also made on 20 specimens of paper currency, and these show higher counts. The lowest count here is 30 per 100 sq. cm. The same germs are found on the currency as those shown by the library books; but, in one case, *diphtheria* bacilli are also identified.

Newspaper and magazine paper are artificially infected with bacteria, dried at

37°, and then stored, both in the dark and in daylight. In the former case, germs can still be isolated after four weeks. In daylight, however, the microorganisms appear to die within four days. From these experiments, it would seem that the danger of infection is greater in the case of soiled paper bills than from old books. Gerd B. Roemer. *Das Papier*, 8, 279-80 (1954) (in German).

New electrolytic method for determining reducing substances in pulp

In a 300 ml. Erlenmeyer flask, 100 ml. 1 per cent caustic soda are heated to boiling to expel the air, and 1 g. of finely divided pulp is then added. The flask is sealed with a Bunsen valve and the boiling continued (gently) for 15 min. After cooling, the mixture is filtered through a G3 fritted filter and the filtrate (I) placed in a closed flask.

In the interim, 80 ml. of 1 per cent caustic soda are electrolyzed with stirring for 10-12 min. in a 100 ml. beaker, using two platinum electrodes (each have the area of 2 sq. cm.) and a bath voltage of 0.2v., continuing until the bath voltage and current are constant. Exactly 15 min. after starting the current, 10 ml. of I are added, and the change in current intensity is measured every minute until a maximum is reached. The difference between this maximum and the constant current serves as a measurement of the reducing substances in the pulp. These maxima obtained for various pulps are compared with the corresponding copper numbers, and a standard curve is drawn from which the appropriate copper numbers can then be read. The correlation between change in current intensity and copper numbers is established in bleached and unbleached sulfite and kraft pulps.

The method, it is claimed, is useful in controlling fiber degradation during pulp bleaching. Kurt Schwabe and Heinz Schröder. *Faserforsch. u. Textiltech.*, 4, No. 6, 261-3 (1953) (in German) (through *B.I.P.C.*, 24, 968 [1954]).

Particle size in free rosin sizing

In an illustrated lecture, the author discusses the relationship between particle size, the type of rosin and the conditions of size formation.

In sizing a sheet, the rosin does not serve as adhesive in gluing fibers together; it appears to enter the capillaries, on the walls of which the rosin particles are fixed by aluminum ions. Five rosins of different origin are examined. The rosin giving the largest particle size gives the best sizing effect, whereas the smallest particles show the poorest. Other rosins are intermediate between these two extremes. Any increase in particle size is also correlated with an *increase* in acid and saponification numbers and a *decrease* in unsaponifiables. No correlation is found between particle size and ester number or viscosity of the melted rosin.

Actual conditions used in the preparation of size solution are of secondary importance. The most significant factors appear to be the type and concentration of the protective colloid (and this also takes into account the saponified portion of the rosin), and the temperature and state of motion of the particles. The particle distance from each other ("Abstand") after rosin deposition on the fiber also apears to be of marked importance, as is the interfacial tension of the rosin-water system. In general, rosins that are difficultly dispersible are those most effective as sizing agents, and vice-versa.

A laboratory technique is outlined for judging sizing efficiency based on dispersibility. Eleven figures and 10 literature references are given. Franz Senger. *Das Papier*, 8, 242-7 (1954) (in German, with very brief English and French summaries).

Indirect heating with water in a wallboard mill

The author discusses the advantages of indirect heating with hot water in place of steam under certain conditions in industry. The advantages are most marked in those plants in which power cannot be generated from bleeding or counterpressure steam turbines. In extreme cases the hot water method has actually been used, even for the double walled drying cylinders of paper machines.

The high pressure hot water system is now being used in the newly erected fiberboard mill at Vrena, and a description of the layout is given. So as to operate the boiler house at maximum efficiency, certain combinations of an air preheater and economizers became necessary, as did the heat accumulation required for load compensation. Steam evaporation had to be avoided. The present article deals fully with the solution of these mill problems and describes the varied regulators and controlling devices incorporated into the system so as to simplify the supervision of the boiler plant.

Descriptions are also given of the indirect evaporation of low pressure steam for direct consumption, the feedwater treating plant, and the load compensating controls. As a result of the various installations, the plant shows a boiler efficiency of 83-90 per cent, with the minimum heat consumption.

The twenty figures in the text include half-tones, graphs, sketches, and sections taken from the automatically recorded charts. Two tables and five references are also given. S. Bertil Segring. *Svensk Papperstidn.*, 57, 568-76 (1954) (original in Swedish, with English summary).

Stainless steel in plating digesters

An illustrated article deals with the utility of welded stainless steel that can be used in plating the linings of digesters used for sulfite, sulfate, and nitric acid pulping. The authors also deal briefly with the mechanical behavior, installation and maintenance of the stainless steel. Eugen Kessler and Ernst Versen. *Das Papier*, 8, 283-8 (1954) (in German).

Chemical Pulping Processes

Chemipulp's high degree of chemical, mechanical and physical control over materials and operations results in maximum plant output, high pulp quality, and low operating costs.

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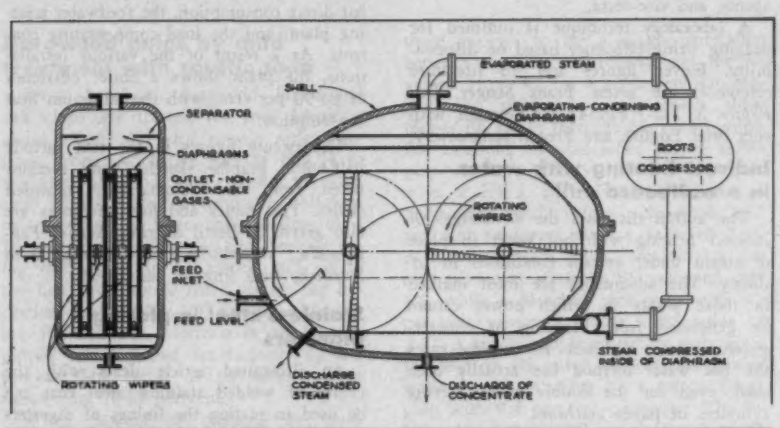
NEW PRODUCTS



Self-cleaning evaporator

A unique self-cleaning evaporator said to provide a solution to scaling and corrosion problems inherent in mass evaporation and concentration processes has been introduced to the American market. Presented under the trade name "Sebava," by which it has been known and successfully used for the past 15 years in Europe, the new evaporator is claimed to have a remarkable advantage in operating efficiency over similar equipment now being used in this country.

The problem of scale formation on heating surfaces is solved in this evaporator by means of revolving stainless steel wipers which maintain clean, non-scaling heat transfer surfaces. The wipers also help speed evaporation by spreading a thin film of liquid over heating surfaces, producing high turbulence and, thus, rapid evaporation. These wipers, combined with the well-known thermal compression principle used in "Sebava," are said to be responsible for its efficient operation.

Capacities of the evaporator range from a pilot model capable of handling 65 lb. of distillate per hr. to the largest standard unit which can produce 6,000 lb. of distillate per hr. Special designs are available for processing larger quantities. Power requirements for operation are approximately 8 kwh per 1,000 lb. of distillate, or 125 lb. per kwh, plus a small amount of make-up heat in specific applications. *Roots-Connersville Blower Div., Dresser Industries, Inc., Connersville, Ind.*

Diaphragm valves

Greater port capacity that permits the use of smaller piping with lower pressure drop, and connections that are re-usable in maintenance replacement mark the design advances inherent in the X-V Series of diaphragm principle valves recently announced.

Because the X-V Series valves are designed primarily for such appilcations as shut-off, throttling and control of acids and chemicals in corrosive or abrasive service, many of the types are lined. According to the manufacturer, generous sized body areas and oversized ports are provided, resulting in capacities as much as 50 per cent greater than other valves of similar construction.

An exclusive feature of the X-V Series is a union which allows for the lining to come up over the face of the union and to come in contact with the union tail piece, of special material. For maintenance replacement, valves can be supplied without the tail piece and union nut, providing a saving for these parts which can be re-used.

These valves are manufactured with bodies of cast iron, 316 stainless steel or Hastelloy "C". They are available either unlined or lined with the same material as the diaphragm and disc. Sizes range from ½ through 4 in. Connections are flanged, screwed or union. All valves are designed for pressures up to 150 psig at a maximum temperature of 180° F. *Farris Flexible Valve Corp., 521 Commercial Ave., Palisades Park, N. J.*

Wound-rotor motor

What is believed to be the first rib-type enclosed, fan-cooled wound-rotor motor to be made with slip rings, brush rigging, rotor and stator inside a single frame enclosure has been announced. The first A-C explosion-proof wound-rotor to bear the Underwriters' Laboratories label, the new unit is available at 1800 rpm and slower speeds, in frames 284 to 505, of standard enclosed or explosion-proof construction.

In general, the new motor is applicable where very low starting current, high starting torque, smooth acceleration, jogging or variable adjustable speed dictate the use of a wound-rotor motor and where moist, dirty, corrosive, or hazardous atmospheres require a totally enclosed motor.

The frame of the motor has an extended front end to include the slip rings, brushes

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*U. S. Patent No. 2,654,295

and brush rigging in one enclosure. The elongation provides added surface for heat dispersal. Removal of two large pipe plugs from the upper quadrants of the frame on the slip-ring end provides large openings for maintenance work and adjustment of brushes and brush rigging. Slip-ring leads enter a separate cast-iron conduit box, and the lead opening in the frame is sealed. *Allis-Chalmers Mfg. Co., 991 S. 70th St., Milwaukee, Wis.*

Motor control centers

A new line of motor control centers which are said to be unusually compact in design was introduced recently. Known as DA7093, this motor control center, according to G-E engineers, saves up to 50 per cent in floor space. It takes nine NEMA Size One starter units or six NEMA Size Two units in the standard 90 in. trough without reduction in pull-box space. The starter units are of either the fusible or circuit breaker types.

Several additional design and construction features have been incorporated in this new line. A new center busing arrangement frees pull-box space for wiring and increases vertical bus capacity from 300 to 600 amps. This same arrangement also makes available continuous main buses of 600 or 1200 amps. capacity in standard construction up through five sections. The trough is designed to take straight-in wiring to main lugs.

A separate insulator is furnished for each bus. All bus insulators are molded from material which has low moisture and high impact properties. Main buses are mounted in an edge-to-edge arrangement and vertical bus bars are spaced on 5-in. centers. Both of these innovations are said to afford increased short circuit capacity.

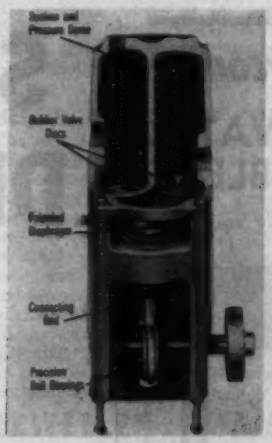
Also incorporated in the DA-7093 are newly designed split Type "B" terminal blocks which allow starter units to be removed or inserted without distributing established wiring. Terminal connections are made by means of captive screws to ease installation.

In the new control center's design, across-the-hinge wiring to push buttons and indicator lights has been eliminated. Push buttons are mounted on the unit door and, when pressed, actuate the contacts by means of plunger-type extensions.

As a safety feature, a new method of grounding has been developed. Cadmium-plated gliders, mounted on the underside of each unit, ground the unit to the cadmium-plated base upon which it rides. As an additional safety factor, this grounding occurs before the unit engages the bus bars. The same cadmium-plated base upon which each control unit rests also acts as an isolating barrier.

Each standard section measures 13½ in. deep by 24 in. wide. These sections can be installed back-to-back, with a combined depth of approximately 27 in.

The DA7093 control center is made in NEMA-1 or IA enclosures, and NEMA Type A, B and C construction is available. *General Electric Co., Distribution Assemblies Dept., Plainville, Conn.*



Diaphragm pump

A diaphragm pump of unique, simple design, which has many advantages for pumping chemical fluids and other products difficult to handle and quickly destructive of the working parts of ordinary pumps, has been developed.

This pump eliminates wearing and sliding parts such as packing glands, piston leathers, crosshead assemblies or revolving impellers. There is no contact between the pumping mechanism and the fluid handled, since the chambers for each are separated by a rubber diaphragm. The working assembly consists of the diaphragm, connecting rod and crankshaft. The ball bearings are grease packed and sealed at the factory for life. The construction is easily and quickly disassembled without need for special tools, according to the manufacturer.

Elimination of air and fluid leakage, and the special design of entrapped air are said to assure the same pumping capacity after years of service as when first obtained. The combination vacuum and pressure chamber provides a cushion for the incoming and outgoing fluid, reducing noise and knock. There are no elaborate piping or controls. *W. S. Rockwell Co., 200 Eliot St., Fairfield, Conn.*

Colorless primary plasticizer

A colorless primary plasticizer for polyvinyl chloride and vinyl copolymers is now available at tankcar and less-than tankcar prices. The material is Santicizer 160, butyl benzyl phthalate.

An excellent plasticizer where stain, oil and kerosene resistance are required, Santicizer 160 imparts very rapid fusion action to formulations for slush-molding and paper-coating, according to studies recently completed by the company.

It is recommended in all vinyl formulations to reduce costs while adding strain resistance, increasing fusion rates and imparting greater tensile strength. *Monsanto Chemical Co., St. Louis 4, Mo.*

Automatic clamping and timing devices

Two new time-saving devices available on the NT and 220 Series machine knife grinders have recently been announced. These two features are said to provide a faster grinding cycle.

One of the new features is an air clamping device designed to provide instantaneous clamping of the knife in grinding position. The manufacturer claims that knife set-up time is cut to one-tenth of the former time required to secure the knife by the "bolt" method. The operator merely aligns the knife and presses a button. The knife clamps are forced by air pressure to set a "bear grip" on the work.

Other advantages are claimed for this new device. An even distribution of clamping pressure is provided along the full length of the knife. At the end of the grind, when the air pressure is released, the clamps spring free of the work to a preset height. Furthermore, should air pres-

sure be shut off for any reason, a slow bleeder valve maintains pressure within the system for as much as two hours.

The second feature is an automatic timing device which automatically stops the grinder, including motors, after a predetermined grinding period. When the preset time has expired, the grinder continues operation till the end of its stroke to prevent burning or uneven work. The automatic infeed operates in conjunction with the timing device and can be set within limits of .0005 to .005 in. grind per table cycle. A safety device prevents accidental starting of the knife table or grinding head. *Samuel C. Rogers & Co.*, 191 *Dutton Ave., Buffalo* 10, *N. Y.*

Automatic tension control system

A completely new approach to the problem of tension control in rewind operations has been made. A new, automatic control system, marketed under the name "Lod-Cap," is now available.

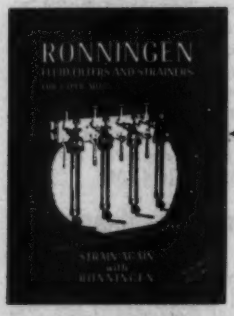
According to the manufacturer, installation of a "Lod-Cap" unit is so simple that it requires only that the line be shut down for approximately one hour. This unit is installed at one end of an existing idler roller in the rewind unit. It is claimed that by use of the "null-balance" principle the maximum displacement of the pillow-block bearing in the "Lod-Cap" unit is kept down to .001 in. from zero to maximum load. This extremely small displacement is said to eliminate any chance of the idler roll shifting position from the norm.

Inside the "Lod-Cap" unit a formed diaphragm supports one end of the idler roller via a pillow block bearing. The required air pressure supplied from the factory at 60 lb. minimum pressure is proportioned to bear against the other side of the diaphragm by means of a poppet valve and is automatically balanced to the desired load or tension.

Once the operator has balanced the controller, any variation in the desired tension on the idler roll will cause the controller to automatically transmit correc-

How Paper Mills overcome

IRON WATER PROBLEMS



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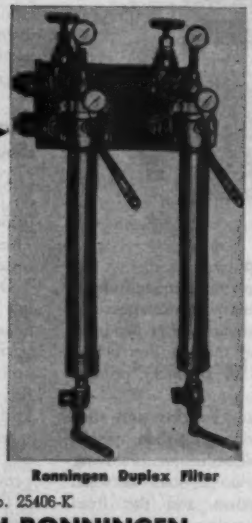

Ronningen Duplex Filter

Many paper mills using deep well water encounter plugged shower nozzles, sprays, and valves, as well as stained wires or containers due to excess iron bacteria, rust, and iron deposit (Fe_2O_3).

RONNINGEN fine mesh wire cloth filters solve this problem effectively and economically.

These units are non short-circuiting, and have sealed ends that keep out foreign matter. Monel metal basket may be scoured out.

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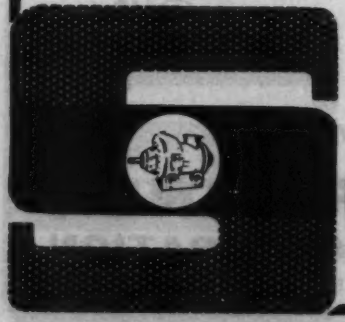

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tive action to avoid breaking or pile-up in the material running over the roll. Response in the system is said to be very high. The manufacturer claims that tests prove that should even a large, sudden change in load or tension occur a positively controlled correction will occur in less than one second.

The majority of the installations in the paper and tension fabric fields have been automatically controlled, either at the let-off or the wind-up ends. *Link Engineering Co., Detroit* 27, *Mich.*

Corrosion-resistant plastic pipe

A new corrosion-resistant, rigid plastic pipe with high impact resistance and toughness has been announced. Called "Dur-Ace," it is a general purpose material capable of handling most common corrosives, with a favorable cost factor.

This new plastic pipe is light in weight, odorless, tasteless, and non-contaminating. It is said to have excellent resistance to all inorganic acids and alkalis with the exception of a few strong acids. The moisture absorption rate is low. "Dur-Ace" maintains good strength, rigidity and chemical resistance over a temperature range from −40° F. to 170° F., according to the manufacturer.

This pipe is now supplied in sizes from ½ to 2 in. in standard 20-ft. lengths, with choice of two wall thicknesses, extra heavy-duty (IPS Schedule 30) and standard (IPS Schedule 40). Fittings, flanges, nipples, etc., of this material are also available, with standard IPS threads.

"Dur-Ace" pipe is easily threaded with standard pipe threading tools or threading machines. The pipe can be bent in regular pipe forming equipment if it is first heated to soften it. *American Hard Rubber Co., 93 Worth St., New York 13, N. Y.*

Coupling

The "Sphereflex" coupling offers industry a new coupling having gear teeth which are cut on a segment of a sphere. Heretofore, it is claimed, this coupling has been applied very successfully in aircraft and other specialized fields.

The male teeth of each coupling half are cut on a true spherical arc, while the internal teeth are cut with a straight root. Thus, whenever misalignment occurs, the curved tooth maintains a constant area of contact with the internal tooth.

Teeth of this coupling are of uniform thickness from side to side. Regardless of the nature of the misalignment there is always complete line contact between the coupling teeth, while point contact is never possible, according to the manufacturer, who also states that no thrust load on bearings can develop through the coupling.

The standard "Sphereflex" couplings are available from stock in sizes 0 through 6 (maximum bore 6⅝ in.), while larger cou-

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Lewellen Automatic Caliper Controls actually measure the board as it is being made, and automatically make stock adjustments to maintain uniform caliper at any speed. They assure simple operation, durability, and truly amazing accuracy. No intangible electronic guesswork.

HERE'S A CASE IN POINT. The installation shown here consists of two complete Lewellen automatic caliper controls, rebuilt last year to include all improvements Lewellen has developed since 1927. *Today, uniform caliper is maintained within .00025"!* Exact thickness is measured, and continuous automatic adjustments are made at the stock gate to compensate for any variation. The quality of materials and workmanship that go into Lewellen automatic controls practically eliminates adjustment and maintenance.

This control has been in continuous operation for 26 years. In 1933 it was completely rebuilt, and every improvement developed since its initial installation was incorporated into it.

THE MORE UP-TO-DATE YOUR EQUIPMENT, the better job Lewellen controls can do for you. Make sure your caliper is controlled by Lewellen . . . the company with 29 years of experience in the manufacture and installation of caliper controls. We will custom-engineer your controls right on the job, to meet any special conditions . . . and you'll find they pay for themselves by eliminating complaints and by savings in stock. Write for complete information.

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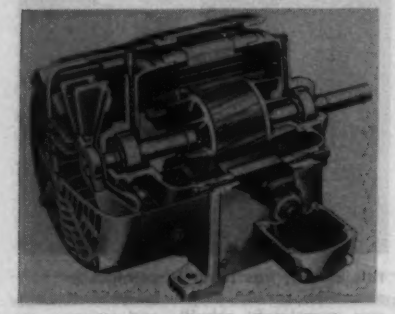
*U. S. Patent No. 2,355,091

plings are made to order. Also a complete selection of floating shaft and vertical couplings using the "Sphereflex" principle are available. *Philadelphia Gear Works, Erie Ave. & G St., Philadelphia* 34, *Pa.*



Motor designed for chemical services

Development of a motor specially designed for chemical services has been announced. It is totally enclosed and corrosion protected, designed for dangerous and damaging atmospheres.

Specific features for these services include a stainless steel stator band surrounding the inner enclosed case, a stainless steel fan cover guard, cast-iron conduit box sealed with a non-deteriorating, impervious compound, cast-iron ventilating fan for the totally-enclosed design or a cast bronze fan for explosion-proof service with Underwriter's Label, cadmium plated screws and fittings exposed to the atmosphere, elongated bearing caps, and a double-sealed moisture drain. Other features are the company's exclusive asbestos-protected windings, "Lubriflush" transverse lubrication and normalized bearings.

Designated as Types SD and SE, this motor is produced in ratings from 3 to 150 hp. *U. S. Electrical Motors Inc., Box* 2058, *Los Angeles* 54, *Calif.*

Magnetic separator

A magnet assembly, specially designed to trap metal particles in the stock before they can cause damage to equipment, has been added to Black-Clawson's line of mill equipment.

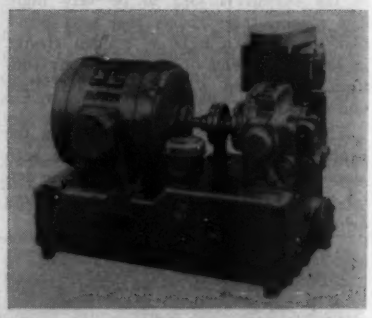
Installations in the line ahead of refiners, jordans, pumps, screens, fourdrinier wires or cylinder molds will trap for removal any scale, small or large foreign metal material that, if left in the stock, could cause damage.

The magnet is said to be super-powerful, and the total assembly adaptable, in its various sizes, to any and all suitable locations. *Shartle Bros. Machine Div., Black-Clawson Co., Middletown, Ohio.*

.03 maximum carbon stainless castings

A practical and economical method of production of .03 maximum carbon stainless steel alloys in the 18-8 and 18-8 mo grades has made it possible to guarantee a maximum carbon content of .03 in stainless steel castings, or lower under special conditions.

One of the greatest advantages of the extra low carbon grades of stainless steel is to minimize the corrosion adjacent to welds under severely corrosive conditions. *Electric Steel Foundry Co., 2141 N. W. 25th Ave., Portland* 10, *Ore.*



Variable delivery pump

For variable speed straight line and rotary drive applications requiring 1 to 3 hp under precise speed or pressure control, a complete new line of one- and two-way variable delivery pumps are available.

Each pump is a complete package unit, incorporating a variable delivery, high pressure, radial piston pump, with patented, balanced flat valve; a constant-delivery, low-pressure gear pump (small and large size); one of eight standard controls; a three-way suction and return valve for differential systems; dual disk-type check valves for non-differential systems; a double acting high pressure relief valve and a gear pump relief valve.

Compact hand-screw, hydraulic servomotor lever, automatic adjustable pressure unloading, hydraulic remote, electric remote, electric-hydraulic servo and pneumatic controls mount on either side of the pump case.

These pumps can be mounted on reservoirs integral with machines or furnished with standard oil reservoirs for mounting both pump and electric drive motor. *Oilgear Co.,* 1560 *W. Pierce St., Milwaukee* 4, *Wis.*

Foam rubber pads

Specially designed pads of foam rubber are now proving successful in preventing the dents, gouges and roll distortions that occur in the handling of paper rolls, according to the manufacturer. Known as "Crashpad," these pads are higher at one end than at the other and are covered with vinyl-coated nylon, "Fiberthin". Leather-reinforced air vents on the sides expel air on impact. The pads are equipped with handles on both ends and sides for easier, quicker positioning. "Crashpads" are available in various sizes. *Gordon Holcombe Co., Inc.,* 32 *Clay St., San Francisco, Calif*

Green-shade yellow dyes

Two new colors have been added to the American Cyanamid line of stilbene direct dyes. Both dyes, Pheno Fast Yellow 8G and Pheno Fast Yellow 6G, are designed primarily for beater dyeing in the paper trade.

Both colors are bright green-shade yel-

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lows. Pheno Fast Yellow 8G is an extremely green-shade yellow, differing from anything previously available, according to the manufacturer. These two dyes have suitable dyeing characteristics for napkin and tissue grade papers and are alkali resistant, non-feathering, and produce more uniform paper, it is claimed. *American Cyanamid Co., Dyestuff Dept., Bound Brook, N. J.*

Size press

A new type of size press has been introduced to the market. An entirely new concept of press loading is involved in that two rotochambers are used, one for loading and one for lifting. Neither of these

New Products . . . . . .

rotochambers has any packing gland piston rod guides or other friction creating parts.

Another point of interest is the absence of clevices or pins to make the connection between the press arm and the rotochambers. Instead of clevises or pins, spherically shaped nose pieces mounted on each rotochamber piston rod fit into conical sets on the top and bottom of the press arm, thus engaging and disengaging the press arm, depending on which rotochamber is being used. *Black-Clawson Co., Hamilton, Ohio.*

Non-skid printing ink

A new, non-skid printing ink that minimizes sliding, shifting and extra handling of paper bags, sacks, corrugated cartons, and other packages has just been developed.

Called "Hydry" non-skid ink, the new ink is a special formulation that is rub-resistant yet provides a built-in "skid resistance" for industrial packages. It is available in any range of colors. The use of this ink on bags and cartons, it is claimed, cuts down industry losses in shipment, saves time in stacking, and provides distinct advantages in transit, storage and in-plant handling. *Sun Chemical Corp., General Printing Ink Div., Long Island City, N. Y.*

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NEW LITERATURE

Books

THE STATISTICS OF PAPER—1954. Published by the American Paper & Pulp Association, 122 E. 42nd St., New York 17, N. Y. 8½ x 11. 70 pages. $10.00. Paper-bound.

In this 1954 edition, previously published data have been extended through 1953 except where figures for that year were not yet available from the Bureau of the Census.

Two new tabulations have been added: a study of the estimated number of workers and communities in the United States wholly or in part dependent on the paper industry; and a summary of the industry's timberland holdings. The tables showing the quantity and value of paper and board products for 1939 and 1947, published in the last edition, have not been included.

PRINTING IS A BUSINESS. Published by J. W. Rockefeller, Jr. & Associates, 140 Cedar St., New York 6, N. Y. $2.50.

This volume, which deals with the business aspects of printing, follows "Report on the Printing Industry," which was published five years ago. The book includes a discussion of changes which have taken place in the industry during the past five years and their effect on printers, advertisers, and large purchasers of printing.

WOOD PULP STATISTICS. 1954 edition. Published by United States Pulp Producers Association, Inc., 122 E. 42nd St., New York 17, N. Y. 9¼ x 11¼. 265 pages. $10.00. Paper-bound.

This annual publication is an historical record of the trend and pattern of wood pulp supply and demand in the major producing and consuming countries of the world. Compiled from widely scattered sources, it brings together in a single book information basic to an understanding of world pulp and paper markets.

To aid the reader, an explanation of terms is given at the beginning of the book. The statistical information is divided into three sections: United States, Foreign Countries and World Summaries. This first section provides statistics on wood pulp capacity, production, domestic sales, new supply, consumption, inventories, imports, exports, prices, and a summary. Also included in this section is information on pulpwood consumption, receipts, and inventories; and paper capacity, production, imports, exports and new supply. Data on rayon fiber consumption and production and waste paper consumption is also given.

Section II presents similar information on wood pulp for 33 foreign countries, and Section III gives world summaries for wood pulp and rayon. Many graphs are included.

Manufacturers' Publications

Through the co-operation of manufacturers and suppliers, THE PAPER INDUSTRY lists the following catalogues, bulletins and booklets. They may be obtained without cost or obligation, unless otherwise specified, by writing direct to the manufacturers. Please address requests on your company letterhead.

Packaged Variable Delivery Pumps. Oilgear Co., Dept. PI, 1560 W. Pierce St., Milwaukee 4, Wis.—The new line of Type "A" packaged variable delivery pumps for both straight line or rotary drive applications are described in Bulletin No. 47010. J.I.C. circuits of pumps for differential and non-differential systems, symbolic diagrams of straight line and rotary drives and installation dimensions are included.

Manufacturing Activities. Blaw-Knox Co., Dept. PI, Farmers Bank Bldg., Pittsburgh 30, Pa.—The diversified manufacturing activities of the Blaw-Knox Co. are shown in a recently published informational brochure entitled "This is Blaw-Knox." It contains illustrated material on all major departmental operations in the company's 11 divisions.

Electric Motors. U. S. Electrical Motors Inc., Dept. PI, Box 2058, Los Angeles 54, Calif.—Booklet 1878 illustrates the 20 principal types of improved U. S. motors.

Stub Shaft Assembly. Clark-Aiken Co., Dept. PI, Lee, Mass.—This new bulletin describes the features of the stub shaft assembly.

Gearing. Foote Bros. Gear & Machine Corp., Dept. PI, 4545 South Western Ave., Chicago 9, Ill.—A quick picture of the product design improvement opportunities offered gear users in every industrial field through the size, capacity and cost advantages of Duti-Rated Lifetime gearing is presented in the new booklet entitled "Get More For Your Gear Dollar."

Offset Printing Presses & Winders. Black Clawson Co., Dilts Machine Works Div., Dept. PI, Fulton, N. Y.—Bulletin 16-DM describes the "Pacemaker" offset press, and Bulletin 17-DM describes the "Pacemaker" automatic collapsible register reel and two drum winder, Model 800.

Dust Collectors. Newcomb-Detroit Co., Dept. PI, 5741 Russell St., Detroit 11, Mich.—Bulletin D-53-30 describes both junior and senior models of "Uni-Wash" collectors with engineering data, dimensions and application photographs. The belt-driven down-draft bench dust collectors are also described, in addition to the automatic sludge conveyor and shake-out booth.

Stress Rupture Values. Babcock & Wilcox Co., Tubular Products Div., Dept. PI, Beaver Falls, Pa.—Data Card TDC 153-A presents stress rupture data on 11 tubing steels used in high temperature service.

Pulpers. Downingtown Mfg. Co., Dept. PI, Downingtown, Pa.—Bulletin No. 434, "Pulping Phase of the Downingtown Stock Preparation System," shows numerous illustrations with elevation and plan views of both batch and continuous type "Fibrepulpers". The operation of the junk remover and rag catcher are explained, and descriptions of the spiral bevel gear drive are included.

Stainless Steel. Crucible Steel Co. of America, Advertising Dept. (PI), P. O. Box 88, Pittsburgh 30, Pa.—The booklet "Making the Most of Stainless Steels in the Pulp and Paper Industry" shows how proper use of stainless steel pays off in wood preparation, sulfite pulping, sulfate pulping, pulp recovery from waste, and bleaching, and describes the advantages of stainless when used in the beater room and in paper machines.

Wire Stitching. Acme Steel Co., Dept. PI, 2840 Archer Ave., Chicago 8, Ill.—Bulletin AD 131 is a new catalogue on the subject of wire stitching corrugated and solid fibre boxes and the machines used in this fastening process.

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Paper and Pulp Map of the United States

Size 42" x 58" (Issued as a supplement to the December, 1953 issue of The PAPER INDUSTRY)

ILLUSTRATES: (1) Boundaries of Forest Areas and kinds of Woods; (2) Location and identity of Integrated Paper and Pulp Mills; (3) Location of Paper and Paperboard Mills, not processing own pulp; (4) Pulp Mill Saturation areas; (5) Daily Tonnages, capacities by regions; (6) Kinds of Paper and Paper products manufactured.

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PRACTICALLY NEW 42" 4-color Aniliner purchased in May, 1952. This press is offered for sale only because it has been replaced with a 6-color machine. Kidder's current price on the same model is $37,000 FOB Dover, N.H.; we are offering this equipment complete at $30,000 FOB our Atlanta plant on an "as is-where is" basis subject to prior sale. It is available for inspection by responsible printers. No agents.

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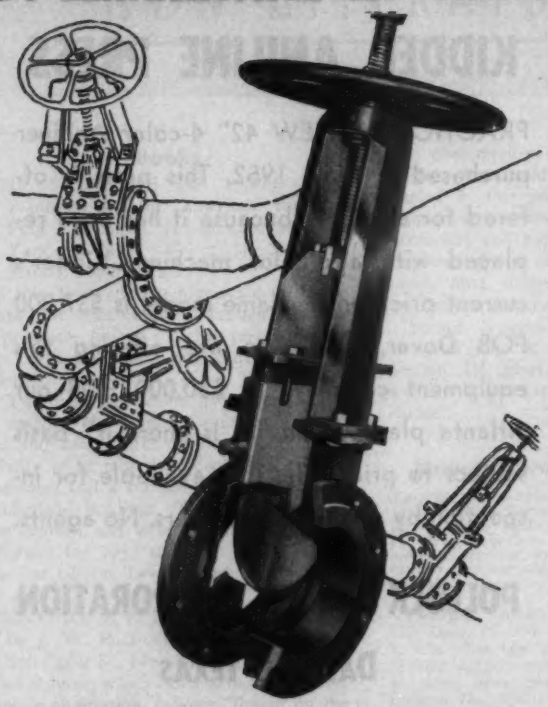
PREVENT STOCK BUILD-UP BY ELIMINATING "LIP" AREA



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New "Rubber Seating" Fabri-Valves completely eliminate "lip" area leaving nothing for stock to "hang up" on. Rubber seats press tightly together when gate is open (see illustration) insuring free flow of heavy solution from port to port. Rubber seats prevent wear and galling on gate, insure tight shut-off for normal flow or back pressure, and can be easily and economically replaced. New "Rubber Seating" Fabri-Valves offer low-cost original installation and reduced maintenance. They cost less...are cheaper to ship and install. Custom fabricated in 4" to 24" size from stainless steel, monel, nickel or any alloy combination.

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MARKET QUOTATIONS

RAGS (Domestic)
NEW RAGS

The following are quotations to mills, f.o.b. New York: per cwt.

No. 1 White Shirt Cuttings	13.50 to 14.50
New Unbleached Muslins	15.50 to 16.50
Fancy Shirt Cuttings	7.50 to 8.00
No. 1 Percales	6.75 to 7.00
No. 1 Washables	3.00 to 3.25
No. 1 Light Silesias	7.50 to 8.00
No. 1 Light Prints	5.75 to 6.00
Light Flannelettes	7.50 to 8.00
Cottonades	3.75 to 4.00
Blue Overalls	7.50 to 8.00
Blue Cheviots	7.00 to 7.50
Canton Flannels, Bleached	11.00 to 11.25
Canton Flannels, Unbleached	11.00 to 11.25
Osnaburg Cuttings	9.50 to 10.00
Underwear Cuttings, Bleached	14.50 to 15.50
Underwear Cuttings, Unbleached	14.50 to 15.50
Khaki Cuttings—	
Sun Tan	6.75 to 7.00
Mixed	3.75 to 4.00
Linen Cuttings—	
American	7.25 to 7.50
White	13.00 to 14.00
Grey	13.00 to 14.00

RAGS (Domestic)
OLD RAGS

Quotations to consuming mills, dollars per hundred pounds, f.o.b. New York, follow:

	per cwt.	
Roofing		
No. 1	1.10	to 1.20
No. 2	.80	to .90
No. 3 and 4	.60	to .70
Twos and Blues—		
Repacked	2.25	to 2.50
Thirds and Blues—		
Repacked	2.00	to 2.25
Miscellaneous	1.65	to 1.85
Whites, No. 1—		
Repacked	3.75	to 4.00
Miscellaneous	3.25	to 3.50
White, No. 2—		
Repacked	2.75	to 3.00
Miscellaneous	2.25	to 2.50

RAGS (Foreign)
ex dock New York City
NEW RAGS

per cwt.

Nominal
New Dark Cuttings
New Mixed Cuttings
New Light Silesias
Light Flannelettes
Unbleached Cuttings
New White Cuttings
New Light Oxfords
New Light Prints

RAGS (Foreign)
ex dock New York City
OLD RAGS

per cwt.

Nominal
No. 1 White Linens
No. 2 White Linens
No. 3 White Linens
No. 4 White Linens
No. 1 White Cottons
No. 2 White Cottons
No. 3 White Cottons
No. 4 White Cottons
Extra Light Prints
Ord. Light Prints
Med. Light Prints
Dutch Blue Cottons
French Blue Cottons
French Blue Linens
Checks and Blues
Linsey Garments
Dark Cottons
Old Shoppers

ROPE and BAGGING
f.o.b. and ex dock New York City

	per cwt.	
Gunny No. 1—		
Foreign	4.25	to 4.50
Domestic	4.25	to 4.50
Wool Tares—		
Light	4.50	to 4.75
Heavy	4.75	to 5.00
No. 1 Scrap Bagging	3.75	to 4.00
Manila Rope—		
No. 1 large	5.50	to 6.00
No. 1 small	4.50	to 5.00
Sisal Rope—		
No. 1 large	5.00	to 5.25
No. 1 small	4.50	to 4.75
New Burlap Cuttings	5.75	to 6.25
Jute Threads—		
Foreign (Nom.)	6.00	to 6.25
Domestic	6.25	to 6.50
Strings—		
No. 1 sisal	4.75	to 5.00
No. 2 sisal	4.25	to 4.50
Soft jute	4.75	to 5.00
Mixed	2.50	to 2.75

WASTE PAPER

The following are quotations, dollars per ton, for No. 1 packing f.o.b. New York:

	per ton	
Shavings—		
Hard White Env. Cuts	115.00	to 125.00
Hard White No. 1	90.00	to 95.00
Soft White, one-cut	75.00	to 80.00
Soft White, No. 1	55.00	to 60.00
Coated Soft	40.00	to 45.00
Fly Leaf No. 1	25.00	to 30.00
Fly Leaf, Woody No. 1	25.00	to 30.00
No. 2 Mixed Col. Woody	20.00	to 25.00
Flat Stock—		
No. 1 Heavy Books and Magazines, Repacked	22.00	to 24.00
Mixed Books	16.00	to 17.00
Ledger Stock—		
No. 1 White	55.00	to 60.00
No. 1 Mixed (Colored)	35.00	to 37.50
Manilas—		
New Env. Cuttings	70.00	to 75.00
New Cuts, One-Cut—		
Extra Manilas	19.00	to 20.00
Manila Tab Cards, Free of Ground Wood	80.00	to 85.00
Colored Tab Cards	50.00	to 55.00
Kraft—		
New Envelope Cuttings	65.00	to 70.00
Tripled Sorted No. 1 100%	40.00	to 45.00
No. 1 Old Assorted	27.50	to 32.50
News—		
White Blank	65.00	to 70.00
Overissue	22.00—	
No. 1 Folded	16.00—	
Old Corrugated Containers	22.00—	
New Jute Corrugated Cuts	27.00—	
Mill Wrappers	17.00—	
Box Board Chips	11.00—	
No. 1 Mixed Paper	10.00—	

CHEMICALS
f.o.b. shipping point

Alum (Papermakers)—	
Lump, cwt.	5.05—
Ground, cwt.	4.30—
Powdered, cwt.	5.10—
Blanc Fixe—	
Pulp, bulk, ton	100.00—
Dry, barrels	105.00—
Bleaching Powder—	
Drums, cwt.	5.00 to 6.00
Casein (Domestic Standard)	
20-30 mesh (bags), lb.	
80-100 mesh (bags), lb.	27.00—
Argentine, lb.	24.00 to 24.50
China Clay—	
Domestic Filler	
Bulk (mine) ton	10.50 to 16.00
Domestic Coating	
Bulk (mine) ton	17.00 to 23.00
Imported (ship side)	
Bulk (lump) ton	20.00 to 30.00
Chlorine—	
Tank cars (wks) cwt.	2.25—
Gelatine (edible), lb.	1.25 to 1.35
Glyc. (C.P.) drums, lb.	.29½ to .30
Litharge, powd. bbl. lb.	.16½ to .17

MARKET QUOTATIONS

Rosin (Gum)—	New York, per 100 lbs.
E	9.20—
F	9.20—
G	9.20—
WW	9.40—
Rosin (Wood), carlots, F.O.B. South	5.75—
Salt Cake—	
Dom. bulk (wks) ton	24.00 to 26.00
Imp. bulks on dock— (Atl. ports) ton	
(Nom.)	22.00—
Soda Ash—	
Bulk (works) cwt.	1.35—
Paper bags, cwt.	1.70—
Soda (Caustic)—	
Solid drums, cwt.	3.85 to 4.50
Ground and flake, drums, cwt.	4.25 to 5.00
Sodium Silicate—	
60 deg. 55 gal. drums, (works) cwt.	1.60 to 1.70
40 deg. 35 gal. drums, (works), cwt.	1.35 to 1.40
Starch—	
Pearl, 140 lb. bags, cwt.	6.39—
Pearl, barrels, cwt.	6.89—
Paper (lb.) bags, cwt.	6.39—
Powdered, barrels, cwt.	6.60—
Sulphur (Crude) (Mine) bulk, long ton	26.50 to 28.00
Talc—	
Dom. 100 lb. bags (mine) ton	25.00 to 28.00
Canadian	35.00 to 45.00
Titanium Dioxide—	
Barium Pig, bbls., lb.	.22½ to .23
Calcium Pig, bbls., lb.	.22½ to .23
Zinc Sulphide, bbls., lb.	11.50 to 12.00

WOOD PULP

Quotations on domestic and Canadian wood pulp, dollars per short air dry ton, delivered consuming mills including basic freight allowances, follow:

Bleached Sulphite	140.00—
Bleached Sulphite, Canadian	140.00—
Unbleached Sulphite	120.00—
Unbleached Sulphite, Canadian	120.00—
Bleached Soda	140.00—
Bleached Soda, Canadian	140.00—
Kraft, Bleached	145.00—
Kraft, Bleach., Southern	142.50 to 150.00
Kraft, Bleach., Canadian	145.00 to 150.00
Kraft, Unbleached, Northern	132.50—
Kraft, Unbleached, Southern	95.00 to 105.00
Kraft, Unbleached, Canadian	100.00 to 125.00
Kraft, Semi-Bleached, Southern	140.00—
Sulphite Screenings	72.50—
Sulphite Screenings	67.50—
Groundwood	82.50 to 87.50

Quotations on imported wood pulp, dollars per short ton, on dock American Atlantic ports with varying freight allowances, follow:

Bleached Sulphite, Swedish	135.00 to 140.00
Bleached Sulphite, Norwegian, freight allowed	135.00 to 140.00
Bleached Sulphite, Finnish, freight allowed	140.00—
Unbleached Sulphite, Swedish	115.00 to 122.50
Unbleached Sulphite, Finnish, freight allowed	120.00 to 125.00
Kraft, Unbleached, Swedish, freight allowed	105.00 to 110.00
Kraft, Unbleached, Finnish, freight allowed	105.00 to 125.00
Kraft, Bleached, Swedish, on dock	140.00 to 142.50
Kraft, Bleached, Norwegian	

PAPER

Quotations are mill quotations New York City

Boards—

Prices per ton, delivered in New York, 10 tons or more:

Plain chip	75.00—
News vat lined chip	80.00—
Filled news	75.00—
Solid news	80.00—
White vat lined chip	125.00—
Chip tube and can stock	100.00—
Single manilla lined chip	140.00—
Single jute lined chip	125.00—
Kraft liner	117.50 to 122.50
White patent coated:	
.020	155.00—
.018	157.50—
.016	160.00—

Book Paper f.o.b. New York— per cwt.

Machine coated, two sides

70 lb. No. 2 enamel, 25x 4 cases $17.25
38-500, trimmed 4 sides. Carloads $16.30
45 lb. enamel, 25x38-500, 4 cases $13.05
trimmed 4 sides. Carloads $12.10

Uncoated

55 lb. No. 2 offset, 25x38 4 cases $14.80
500, trimmed 4 sides. Carloads $13.85
50 lb. A Grade English Finish, 25x38-500, un- 4 cases $14.05
trimmed Carloads $13.10
20 lb. envelope, 17x22-500, untrimmed Carloads $12.40
16 lb. tablet, 17x22-500 Carloads $11.35

Rag Content Bond—

(White, 5,000 to 10,000 lbs., basis 16 lb.)

100% rag	58.80—
75% rag	45.45—
50% rag	36.20—
25% rag	29.70—

Rag Content Ledger—

(White, 5,000 to 10,000 lbs.)

100% rag	58.80—
75% rag	45.45—
50% rag	36.20—
25% rag	29.70—

Sulphite Bond—

(White, 5,000 to 10,000 lbs., basis 16 lb.)

No. 1	19.35—
No. 2	19.15—
No. 4	17.45—

Sulphite Ledger—

(White, 5,000 to 10,000 lbs.)

No. 1	20.20—
No. 2	19.50—
No. 4	17.90—

News delivered in New York— per ton

Rolls, Standard (Contract)	125.00 to 126.00
Rolls (Spot)	(Nominal)
Sheets	138.00—

Tissues (Carlots) f.o.b. New York— per ream

White No. 1	1.75—
White No. 2	1.35—
Bleached Anti-Tarnish	2.20—
Colored	2.00—
Anti-Tarnish Kraft	1.65—
Manila	2.00—
Napkins, semi-crepe (12½ lb. to M shts.) per ct.	.90—
Napkins, full crepe and embossed (12½ lb. to M shts.) per ct.	.90—
Toilet, Bleached (M shts.) per ct.	9.35—
Toilet, Unbleached (M shts.) per ct.	7.90—

Towels f.o.b. New York— per case

Bleached	6.80—
Unbleached	5.90—

Wrappings (Kraft) f.o.b. New York— per cwt.

Standard wrapping	8.00—
Butchers, counter rolls	8.50—
Standard bag, mill rolls	7.75—
Shipping sack, mill rolls	8.00—
Gumming, mill rolls	8.35—
Asphalting, mill rolls	8.00—
Envelope, mill rolls	9.50—

Mill operators say:

"We like the production picture we're getting with ORISKANY Felts"

From mills that are running the finest tissues right down the line to those that are producing the heaviest board, we hear the same story: "Production is up since we switched to Oriskany Felts!" Consistent quality and performance are maintained, even on the highest speed machines in operation today!

There are several good reasons why you, too, can select Oriskany Felts with confidence: We blend the world's finest selection of wools . . . and we make our own yarns under constant scientific controls. Step by step, through weave and finish and inspection, skilled craftsmen and the most modern equipment produce your felts to your exact requirements.

Our experienced sales engineers will welcome the opportunity to show you how you can fit Oriskany Felts into your production picture . . . to do the job *better . . . faster . . . at less cost!*

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A set of ten 35mm sound slidefilms—all that is needed for a course in safety fundamentals. The films explain how to organize a safety program, what part the foreman plays in the program and how safety increases production. They also discuss specific safety activities, such as machine guarding, safety inspections, the first aid program, etc. Complete with leader's manual in an attractive leatherette case.

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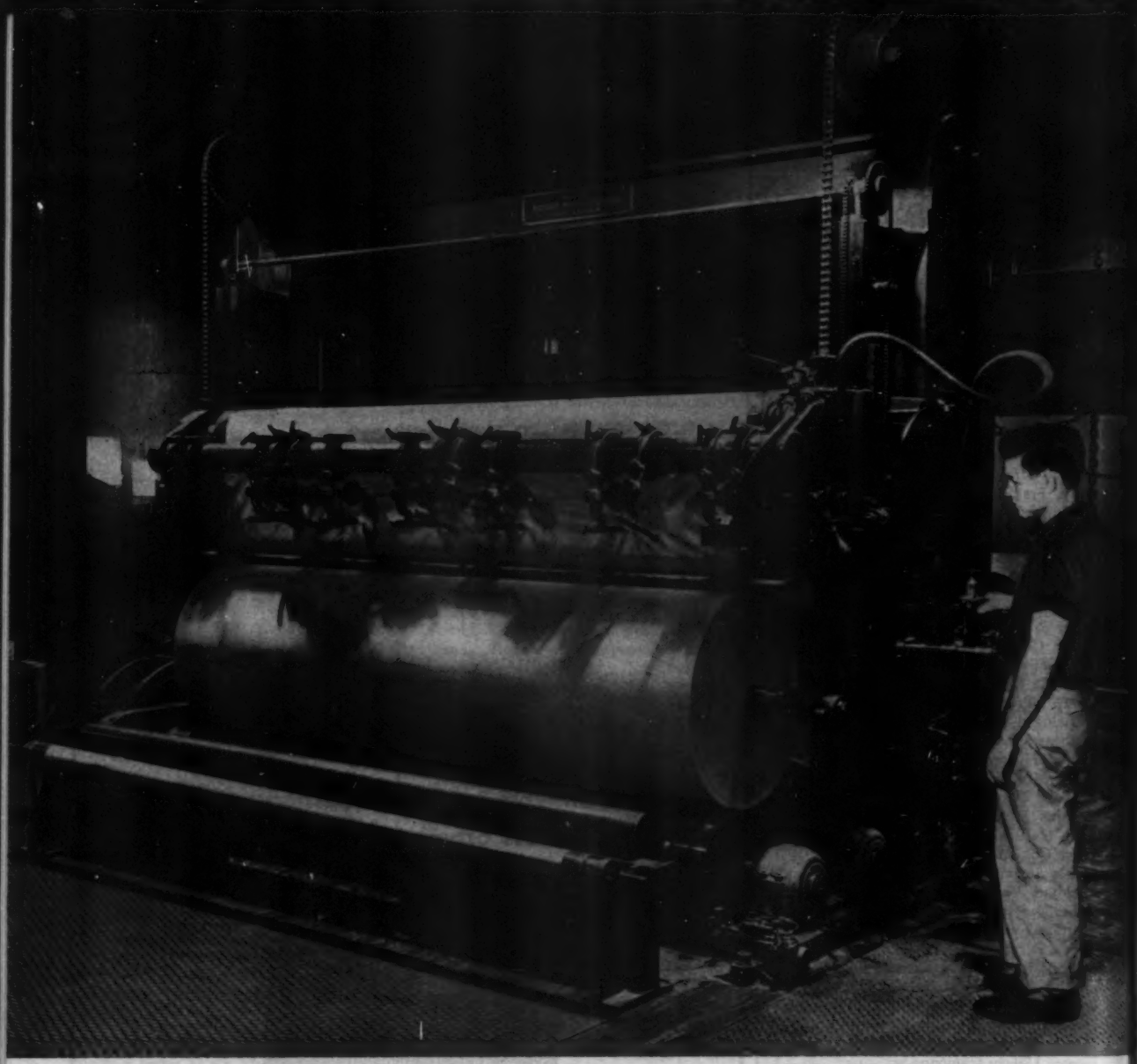

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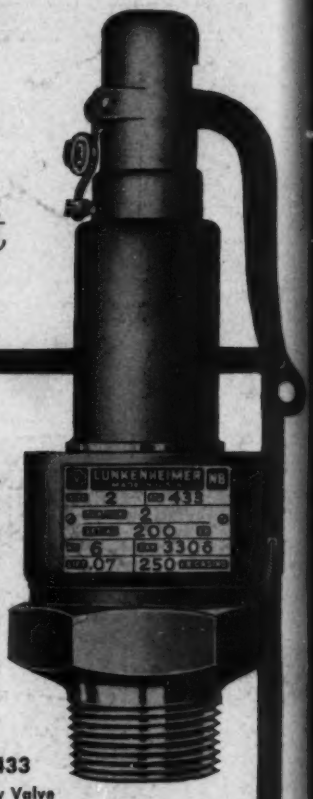

Fig. 433
Pop Safety Valve

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Fig. 658
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